



Thermal Imaging Lenses Catalog 2018

LWIR

MWIR



Light IR 20-275mm f/5.5 MWIR



Light IR 15-75mm f/1.2 LWIR

We See
The
Unseen



One-stop-shop for all your IR optical needs

Ophir Optonics Solutions LTD., Infrared Optics division, an MKS Company (NASDAQ: MKSI), is a world-leading designer and manufacturer of the highest quality lenses at any scale.

Whatever your requirements, rest assured that our know-how, expert team, and technology are all there, ready to provide you with the precise, fully-tailored solution you need. Partnering with you every step of the way, from concept, through design and verification, to manufacturing and post-sales technical support, we are dedicated to delivering on schedule, and within budget.

It is the passion for what we do that has enabled us to maintain a solid reputation and long-term customer relationships through the years.

Thanks to superior engineering capabilities, and by upholding the highest ISO standards, Ophir has earned a reputation for excellent performance and quality in the manufacturing of diffraction-limit products, and for maximizing optical performance through innovative lens designs.

Using advanced technologies, innovative engineering, and opto-mechanical design, we provide solutions for complex challenges in defense, security and commercial applications.

Our range of long-lasting products includes IR components and complex lens assemblies with fixed or motorized focus and zoom lenses. We excel in the production of 1-FOV, multiple FOV and zoom lens configurations, and our knowledge and experience in motorized continuous zoom lens systems is recognized by customers around the world.

In this catalog you will find **LWIR and MWIR thermal imaging lenses for cooled & uncooled cameras:**

- Motorized and zoom lenses
- 1-FOV to multiple FOV
- Extenders and reducers



DEFENSE

Due to the zero-fault tolerance associated with the defense industry, it is essential that optical elements and lens assemblies are of the highest quality. We harness our vast experience working with defense standards, and a range of sophisticated design and manufacturing techniques, to fulfil this requirement, while at the same time meeting the latest SWaP constraints. Furthermore, our lenses are easily integrated into the most sophisticated thermal-imaging and radiometric products, with a standard communication and interface throughout our product range. you with the best possible product.

Defense applications:

Aerial applications

- Unmanned Aerial Vehicles (UAV)
- Payloads and Forward-Looking IR Cameras (FLIR)

Land applications

- Enhanced Vision Systems (EVS)
- Driver Vehicles Enhancement (DVE)
- Remote Controlled Weapon Stations (RCWS)
- Tank Gunner Sight
- Thermal Goggles
- Thermal Weapon Sight (TWS)

Naval applications

- Surveillance
- Targeting

COMMERCIAL

Our full range of continuous zoom lenses are optimized to the needs of the commercial market, enabling outstanding detection, recognition and identification (DRI) ranges, with a fixed F# maintained throughout the zoom range. With high sensitivity and high resolution, these lenses allow crisp, clear images and unparalleled viewing distances.

Our latest generation of LWIR lenses optimized for 10-12 μ m uncooled detectors, addressing the new market shift in the direction of 10-12 μ m detectors. These lenses meet SWaP constraints, providing a shorter focal length and a longer detection range.

All our lenses can be ordered with hard carbon (HC) coating suitable for outdoor and marine applications.

Commercial applications:

Security applications

- Border Control & Parameter Security
- Homeland Security
- Surveillance & Site Control

Aerial applications

- Drones
- Enhanced Viewer Systems

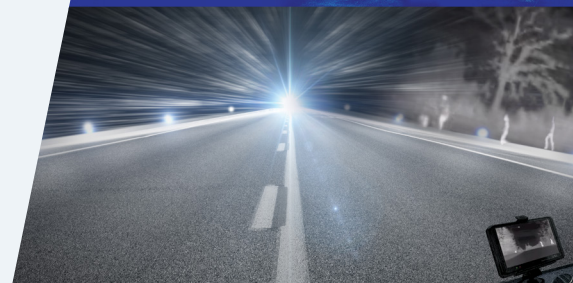
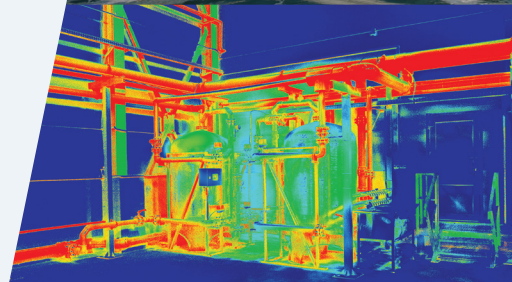
Maritime applications

Automotive night vision

- Road Safety
- Pedestrian Recognition

Thermography

Fire fighting



Manufacturing and materials

With facilities totaling 6750 ft² in Romania and Israel, Ophir manufactures large quantities of optics quickly and cost effectively. Our complete control of the process and unwavering commitment to continuous improvement ensures that we maintain the highest production standards.

We manufacture a wide range of high quality IR components, including aspheric, diffractive, and spherical lenses, as well as windows and prisms. We make use of all prevailing IR materials, including:

Germanium | Silicon | Zinc selenide | Zinc sulfide (IR & multispectral) | Calcium fluoride | Chalcogenide materials, such as AMTIR | IG materials

Manufacturing tools

We incorporate the latest generation technologies in the design and manufacture of our IR optics, including the most advanced:

Diamond-turning machines | Fly-cut machines | CNC generators and polishers | Automated coating chambers | Metrology and test equipment | Laser interferometers and computer-generated holographic test equipment.

Combining these instruments with our patented aspherical diffractive production technology allows us to achieve the highest levels of accuracy and surface quality, across a wide range of substrates, to achieve lens systems that are more efficient, with fewer elements.



R&D and Engineering

Our R&D engineers design, develop, and test lens assemblies, leveraging state-of-the-art design tools and continuously improving manufacturing techniques.

Our innovative opto-mechanical designs and engineering use fewer elements, increase efficiency, produce lighter-weight components and lower assembly costs.



Optical coating

We offer a variety of coating techniques, including:

PVD thermal evaporation (resistance heating and electron-gun coating) | PECVD (plasma-enhanced chemical-vapor deposition) | IAD (Ion gun)

Our highly abrasion-resistant Anti-Reflective (AR) coating options include several types of hard carbon (HC) coatings which provide maximum durability and energy transmission, along with extremely low reflection.

Quality assurance

All our manufacturing departments are AS9100 Rev. D and ISO 9001:2015 certified.

From design to delivery, our material control, in-process testing, operator inspections and final inspections all ensure that our products meet the highest specifications and quality standards.



Support

Even after you have taken delivery, Ophir remains at your service, providing training and support to your staff. Our complete knowledge transfer and ongoing after-sales support ensure that you get the very best out of your product, now and into the future.

AREAS OF EXPERTISE

We design and manufacture a wide range of high-performance MWIR and LWIR optical elements and lenses for use in cooled and uncooled cameras.

We deliver OEM Build to Spec (BTS), Build to Print (BTP) and Commercial Off-the-Shelf (COTS) products, which include single FOV, multiple FOV and motorized zoom lenses, as well as IR components.

We specialize in the design and manufacture of:

Long-range zoom lenses

Designed for various FPA formats, including High Definition XGA and SXGA, our long-range zoom lenses provide a crisp, clean image over full-zoom range, as well as MTF close to the diffraction limit. They also deliver outstanding detection, recognition and identification (DRI) ranges. The lenses are suitable for a wide range of defense, commercial, surveillance and homeland security applications.

Lightweight & compact zoom lenses

The LightIR™ thermal-imaging zoom lens family includes the 26-275mm f/5.5 (MWIR) and the 15-75mm f/1.2 (LWIR). Designed specifically for use in unmanned aerial vehicles (UAV), payloads, drones and hand-held devices, the outstanding opto-mechanical design of the LightIR product family ensures that these lenses are the smallest, lightest and most compact on the market today, while still achieving the highest levels of IR thermal imaging performance.

Key features include:

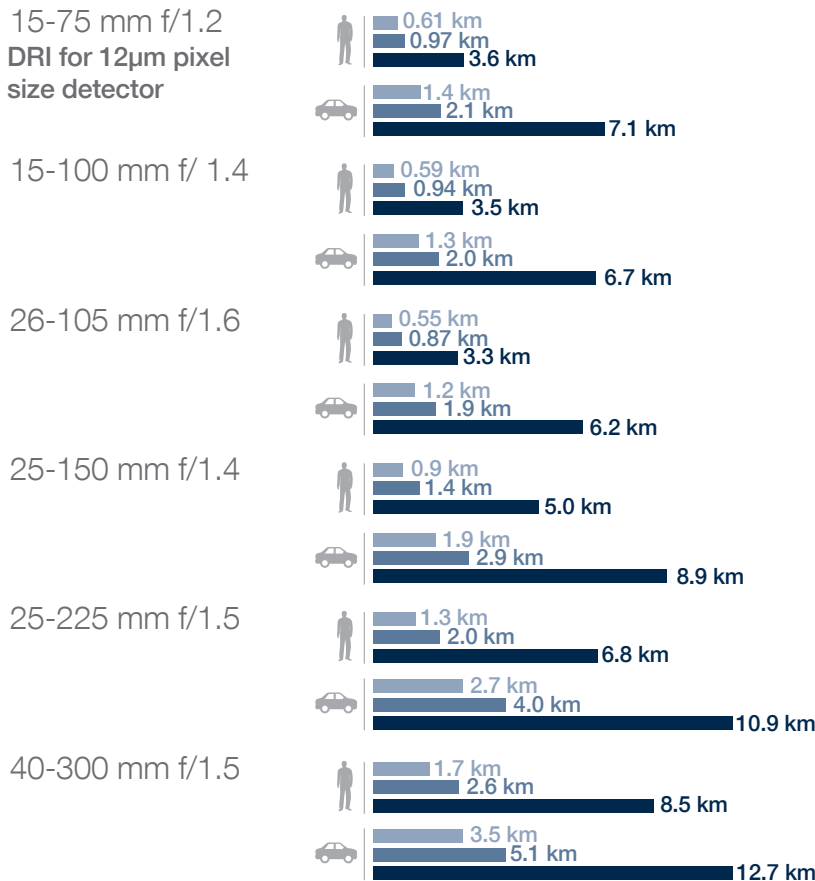
- High MTF performance
- Focus maintained through the entire zoom range.
- Accurate thru-zoom boresight
- Compact and lightweight
- Rugged design
- Folded optics technology
- Coating types: high durability, low reflection hard carbon (LRHC), AR coating
- Fast FOV change
- Compatible with major MWIR & LWIR detectors
- Diffraction-limited optical design

MKS Instruments Inc.

In 2016, Ophir was acquired by MKS Instruments, Inc. (NASDAQ: MKSI). MKS Instruments is a global provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters of advanced manufacturing processes, to improve process performance and productivity. MKS's products are derived from the company's core competencies in pressure measurement and control, materials delivery, gas composition analysis, control and information technology, power and reactive gas generation, vacuum technology, photonics, optics, lasers and motion control. MKS's primary markets are manufacturers of capital equipment for electronic thin film, process manufacturing, environmental monitoring and life sciences, as well as government and research.

Zoom lenses Detection, Recognition & Identification (DRI) performance

Uncooled LWIR, 17 μ m pixel size detector



■ Identification
■ Recognition
■ Detection



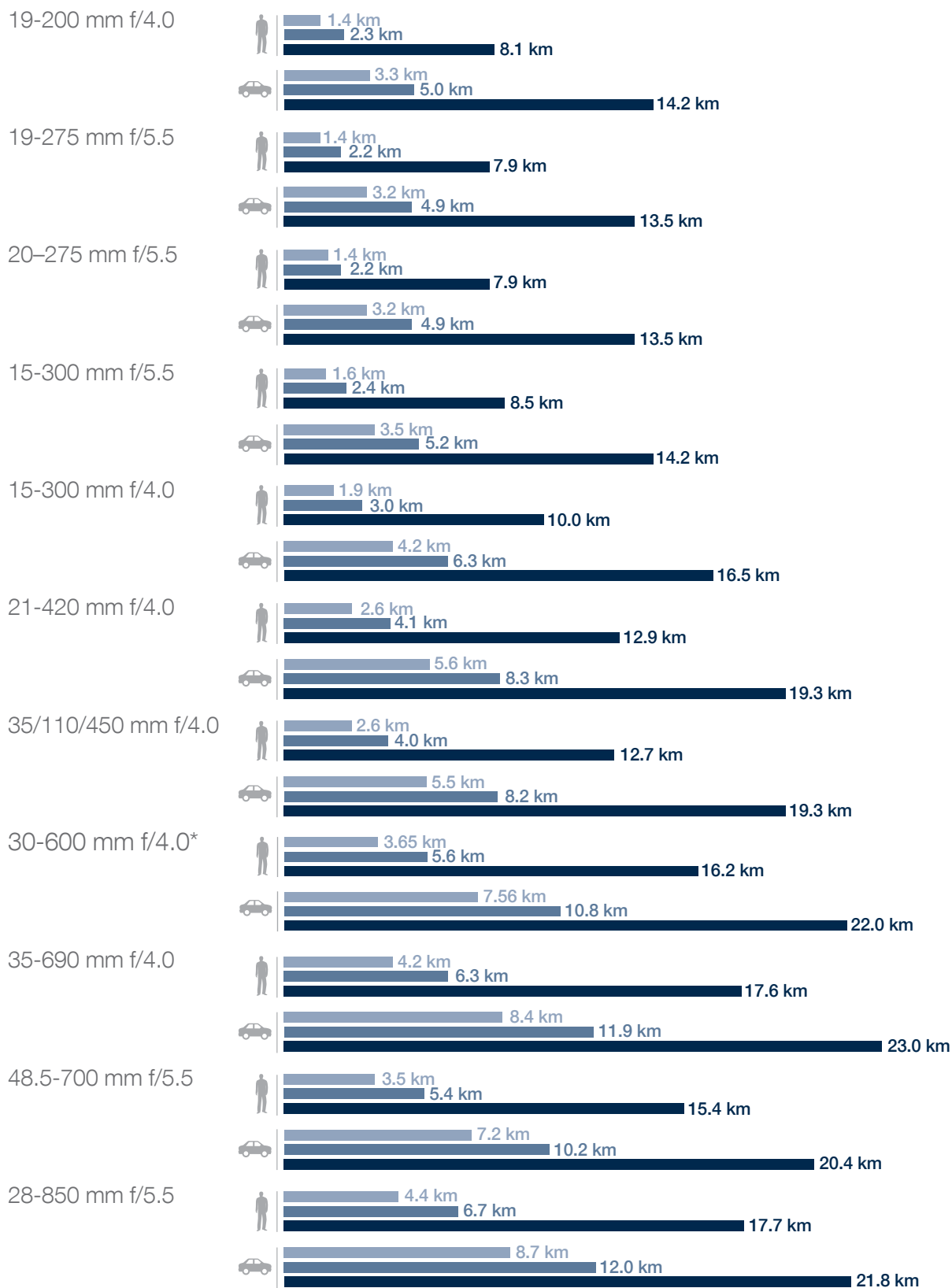
Vehicle size 2.3m x 2.3m



Human size 1.7m X 0.5m

Note. Calculated values real world performance may vary depending on the weather conditions.

Cooled MWIR, 15 μ m pixel size detector



*Assumptions: 15 μ pixel pitch | 23mK NETD @ f/4.0, 30Hz | 600mm f/4 | Blur spot diameter

Field-of-view matrix

For your convenience, each Lens Data Sheet includes a field-of-view Matrix containing the Horizontal Fields of View (HFOV), in degrees, for several common detectors.

Criteria of minimal MTF and relative illumination have been set, as follows. HFOV values will appear in the matrix only for detectors which meet this criteria.

MTF criteria for uncooled detectors:

FPA Pitch	cy/mm	Min. Horizontal Edge MTF (S&T Average)
25 μ	20	35%
17 μ	29.4	25%
12 μ	41.7	17% or no less than half of the diffraction limit value
10 μ	50	17% or no less than half of the diffraction limit value

MTF criteria for cooled detectors

(Please note that the criteria depend on the f/#):

		Min. Horizontal Edge MTF (S&T Average)	
FPA Pitch	cy/mm	f/4	f/5.5
30 μ	16.7	30%	25%
20 μ	25	25%	15%
15 μ	33.3	15%	7%

Relative illumination must not drop below 50% on **Horizontal Field of View** edge and must not drop below 40% on **Diagonal Field of View Edge**.

Focus Range: is defined as the range in which the lens (optics only) has the ability to be focused on a close object, without severe image quality degradation (reduction of 10% relative MTF).

Depth of Field: is defined as the range in which the image quality is only slightly degraded (reduction of 10% relative MTF) when looking at close objects, while the lens is focused on infinity.

Thin film coating durability

HE (High Efficiency) Coating

Adhesion:	per MIL-C-48497A paragraph 4.5.3.1
Humidity:	per MIL-C-48497A paragraph 4.5.3.2 (24 hours)
Moderate abrasion:	per MIL-C-48497A paragraph 4.5.3.3
Temperature:	per MIL-C-48497A paragraph 4.5.4.1 (24 hours)
Solubility & cleanability:	per MIL-C-48497A paragraph 4.5.4.2

HD (High Durability) Coating

Adhesion:	per MIL-C-675C paragraph 4.5.12
Humidity:	per MIL-C-675C paragraph 4.5.8 (24 hours)
Salt spray (fog):	per MIL-C-675C paragraph 4.5.9 (24 hours)
Salt solubility:	per MIL-C-675C paragraph 4.5.7 (24 hours)
Moderate abrasion:	per MIL-F-48616 paragraph 4.6.8.3
Severe abrasion:	per MIL-C-675C paragraph 4.5.10(20 strokes)

HC (Hard Carbon) Coating

Adhesion:	per MIL-C-675C paragraph 4.5.12 (quickly removed)
Severe abrasion:	per MIL-C-675C paragraph 4.5.10(40 strokes)
Humidity:	per MIL-C-675C paragraph 4.5.8 (24 hours)
Salt solubility:	per MIL-C-675C paragraph 4.5.7 (24 hours)
Salt spray:	per MIL-C-675C paragraph 4.5.9 (24 hours)
Temperature:	per MIL-M-13508C paragraph 4.4.4 (-62°C-+71°C 5 hours each temp)
Windscreen wiper action:	no part of the coating shall show signs of removal when exposed to 5,000 revolutions of a wiper blade under 40 grams load using a sand (to defstan 07-55 type c) / water mixture.
Chemical attack:	the coating shall be inert to corrosive attack by acids etc. Specifically, the coating shall endure an acid immersion for 10 minutes in dilute HCL (0.1 normal HCL).

Ophir Lenses Index

Sub category	P/N	Description	Pixel pitch
LWIR for uncooled cameras			
1-FOV NEW	680330	1.8mm f/1.35	25μ
			17μ
			12μ
1-FOV NEW	680309	2.4mm f/1	25μ
			17μ
			12μ
1-FOV	680239	2.6mm f/1.4	25μ
			17μ
			12μ
1-FOV	680235	3.8mm f/1.4	25μ
			17μ
			12μ
1-FOV	680240	4.2mm f/1.4	25μ
			17μ
			12μ
1-FOV NEW	680284	4.5mm f/1.1	25μ
			17μ
			12μ
1-FOV	680214	4.6mm f/1.2	25μ
			17μ
			12μ
1-FOV	680197	6.1mm f/1.4	25μ
			17μ
			12μ
1-FOV	680246	6.3mm f/1.4	25μ
			17μ
			12μ
1-FOV	680143	7.5mm f/1.4	25μ
			17μ
			12μ
1-FOV	680263	8mm f/1	25μ
			17μ
			12μ
1-FOV	680092	8.2mm f/1	25μ
			17μ
			12μ
1-FOV	65096	8.5mm f/1.2	25μ
			17μ
			12μ
1-FOV	680310	8.7mm f/1.2	25μ
			17μ
			12μ
1-FOV	680275	8.9mm f/1.4	25μ
			17μ
			12μ

160x120	320x240	320x256	384x288	480x384	640x480	640x512	672x544	1024x768	1280x1024	Page
										26
60.5										
96.1										
64.8										27
45.8	91.9									
87.3	176.0		180		180					
59.3	118.9		143.0		180			180		28
41.9	83.8		100.5		168.8			180		
63.0										
41.8	89.9									29
29.2	60.3									
54.6	109.3		131.3		180					
37.1	74.3		89.2		148.9			180		30
26.2	52.5		62.9		104.8			168.5		
50.7										
34.1										31
24.0	48.5									
46.9	86.1		99.8							
32.7	61.9		71.2		110.1					32
23.1	44.6		52.5		81.5			117.8		
36.8										
25.5	50.0		60.5							33
17.9	35.3		42.3							
36.5										
24.7	50.1									34
17.4	35.0									
30.7	63.4		77.7							
20.8	42.1		51.0		90.2					35
14.7	29.5		35.5		60.6					
29.3	63.7									
19.7	40.7									36
13.8	28.1		34.1		60.5					
27.7	55.8		67.7		120.0					
18.9	37.7		45.3		77.5					37
13.4	26.6		31.9		53.5			88.7		
26.8										
18.2										38
12.9										
26.0	52.2		63.0							
17.7	35.3		42.4							39
12.6	24.9		29.9		50.1					
25.7	51.1		61.1							
17.5	34.9		41.8		69.0					40
12.1	24.3		29.1							

Sub category	P/N	Description	Pixel pitch
LWIR for uncooled cameras			
1-FOV	680258	9mm f/1.4	25μ
			17μ
			12μ
1-FOV NEW	680407	9.2 mm f/1.0	25μ
			17μ
			12μ
			10μ
1-FOV	680269	9.3mm f/1.3	25μ
			17μ
			12μ
1-FOV	680138	9.8mm f/1.25	25μ
			17μ
			12μ
1-FOV	680021	11mm f/1.05	25μ
			17μ
			12μ
1-FOV	65166	12.6mm f/1.25	25μ
			17μ
			12μ
1-FOV	680256	12.8mm f/1.4	25μ
			17μ
			12μ
1-FOV NEW	680412	13.6 mm f/1.0	25μ
			17μ
			12μ
			10μ
1-FOV	65183	14.25mm f/1.2	25μ
			17μ
			12μ
1-FOV	680054	15.6mm f/1.0	25μ
			17μ
			12μ
1-FOV	680186	16.7mm f/1.25	25μ
			17μ
			12μ
1-FOV	65221	19mm f/1.1	25μ
			17μ
			12μ
1-FOV NEW	680312	19.8mm f/1.2	25μ
			17μ
			12μ
1-FOV	65037	20mm f/0.85	25μ
			17μ
			12μ
1-FOV	680046	22.2mm f/1.2	25μ
			17μ
			12μ
1-FOV NEW	680403	23.9 mm f/1.2	25μ
			17μ
			12μ
			10μ

160x120	320x240	320x256	384x288	480x384	640x480	640x512	672x544	1024x768	1280x1024	Page
25.4	51.4		62.2							
17.2	34.6		41.7		71.2					41
12.1	24.3		29.2		49.3			81.5		
25.2	52.3		65.1							
17.0	34.6		41.9		77.9		84.8			42
12.0	24.1		29.1		49.8		52.6			
10.0	20.1		24.2		41.0		43.1		71.1	
25.0										
17.0	34.0									43
12.0	24.0									
23.2	46.9		56.7							
15.7	31.6		38.0		64.9					44
11.1	22.2		26.7		44.9			74.3		
20.5	41.4		50.1							
13.9	27.9		33.6		57.3					45
9.8	19.6		23.6		39.7					
18.2	36.5		44.0							
12.3	24.7		29.7		50.0					46
8.7	17.4		20.9		35.0			56.7		
18.0	36.4		43.9		76.0					
12.2	24.6		29.5		50.0					47
8.6	17.3		20.8		34.9			56.8		
16.8	33.3		40.4							
11.5	22.8		27.3							48
8.1	16.2		19.3		32.0					
6.8	13.5		16.2		26.8					
16.1	32.3		38.8							
10.9	21.9		26.3		44.0					49
7.7	15.4		18.5		30.9			49.8		
14.6	29.3		35.2							
9.9	19.8		23.9		40.0					50
7.0	14.0		16.8		28.1			45.4		
13.7	27.5		33.0							
9.3	18.7		22.4		37.5					51
6.6	13.2		15.8		26.4			42.5		
11.9	23.6		28.3							
8.1	16.1		19.3		32.1					52
5.7	11.4		13.7		22.7			36.3		
11.5	22.6									
7.8	215.5		18.6							53
5.5	11.0		13.2		21.7					
11.7	23.1		27.5							
8.0	15.9		19.0		30.9					54
5.7	11.3		13.5		22.5			34.5		
10.3	20.7		24.9							
7.0	14.1		16.9		28.3					55
5.0	9.9		11.9		19.9			32.0		
9.6	19.1		22.9							
6.5	13.0		15.6							56
4.6	9.2		11.0		18.3				19.2	
3.8	7.7		9.2		15.3				16.1	

Sub category	P/N	Description	Pixel pitch
LWIR for uncooled cameras			
1-FOV NEW	680360	24 mm f/1.0	12μ
			10μ
1-FOV NEW	680319	25mm f/1.0	25μ
			17μ
			12μ
1-FOV	680108	25mm f/1.2	25μ
			17μ
			12μ
1-FOV	680055	30.5mm f/1.0	25μ
			17μ
			12μ
1-FOV	680111-003	35mm f/1.2	25μ
			17μ
			12μ
1-FOV	680111	35mm f/1.2	25μ
			17μ
			12μ
1-FOV	65184	35mm f/1.4	25μ
			17μ
			12μ
1-FOV	680262	35mm f/1.5	25μ
			17μ
			12μ
1-FOV	65119	R-35mm f/1.0	25μ
			17μ
			12μ
1-FOV	680277	40mm f/1.0	25μ
			17μ
			12μ
1-FOV	65217	45mm f/1.2	25μ
			17μ
			12μ
1-FOV	65093	50mm f/1.0	25μ
			17μ
			12μ
1-FOV	65031	R-50mm f/1	25μ
			17μ
1-FOV	680114	50mm f/1.2	25μ
			17μ
			12μ
1-FOV	680193	50mm f/1.2	25μ
			17μ
			12μ
1-FOV	65215	50mm f/1.7	25μ
			17μ
			12μ
1-FOV NEW	680372	55 mm f/1.0	25μ
			17μ
			12μ
			10μ

160x120	320x240	320x256	384x288	480x384	640x480	640x512	672x544	1024x768	1280x1024	Page
		9.0				18.0	18.9			57
		7.5				15.0	15.8		30.2	
9.13	18.12		21.63							
6.22	12.4		14.82		25.4					58
4.4	8.77		10.5		17.4			27.4		
9.1	18.2		21.8		36.4					
6.2	12.4		14.9		24.8					59
4.4	8.7		10.5		17.5			27.9		
7.2	14.4		17.2							
4.9	9.8		11.8		19.5					60
3.5	6.9		8.3		13.8			21.9		
6.5	13.0		15.5							
4.4	8.9		10.6		17.3					61
3.1	6.3		7.5		12.5			19.7		
6.5	13.0		15.5							
4.4	8.9		10.6		17.6					62
3.1	6.3		7.5		12.5			19.7		
6.6	13.1		15.7		25.7					
4.5	8.9		10.7		17.7			27.8		63
3.2	6.3		7.6		12.6			19.9		
6.9	13.8		16.4							
4.7	9.4		11.2		18.5			27.8		64
3.3	6.6		7.9		13.2			20.7		
6.6	13.1		15.7							
4.5	8.9		10.7		17.8					65
3.1	6.3		7.5		12.6					
5.7	11.3		13.5							
3.9	7.8		9.3		15.3					66
2.7	5.5		6.6		10.9			17.2		
5.1	10.0		12.0							
3.5	6.9		8.2							67
2.5	4.9		5.9		9.7					
4.6	9.2		11.0							
3.1	6.2		7.5		15.0					68
2.2	4.4		5.3		8.8			14.0		
4.2	8.5		10.3		17.4					69
2.9	5.8		7.0		11.7					
4.6	9.1		11.0							
3.1	6.2		7.5		12.4					70
2.2	4.4		5.3		8.8			14.0		
4.6	9.2		11.0		18.3					
3.1	6.2		7.48		12.4			19.8		71
4.6	9.2		11.1		18.3					
3.1			7.5		8.9					72
2.2	4.4		5.3					14.1		
4.2	8.3		10.0							
2.8	5.7		6.8							73
2.0	4.0		4.8		8.0					
1.7	3.3		4.0		6.7					

Sub category	P/N	Description	Pixel pitch
LWIR for uncooled cameras			
1-FOV NEW	680260	60mm f/1.25	25μ
			17μ
			12μ
1-FOV	680115	65mm f/1.2	25μ
			17μ
			12μ
1-FOV	680061-003	65mm f/1.25	25μ
			17μ
			12μ
1-FOV	680311	73.1 mm f/1.05	25μ
			17μ
			12μ
			10μ
1-FOV	65094	75mm f/1.0	25μ
			17μ
			12μ
1-FOV	65110	75mm f/1.0	25μ
			17μ
			12μ
1-FOV	65138	75mm f/1.0	25μ
			17μ
			12μ
1-FOV NEW	680318	75mm f/1.2	25μ
			17μ
			12μ
1-FOV	680198	75mm f/1.4	25μ
			17μ
			12μ
1-FOV	65040	100mm f/1.0	25μ
			17μ
			12μ
1-FOV	65095	100mm f/1.0	25μ
			17μ
			12μ
1-FOV	680121	100mm f/1.0	25μ
			17μ
			12μ
1-FOV	680026	100mm f/1.6	25μ
			17μ
			12μ
1-FOV	65043	150mm f/1.0	25μ
			17μ
			12μ
1-FOV	65070	210mm f/1.4	25μ
			17μ
			12μ
Multiple FOV	680020	45/135mm f/1.1, f/1.6	25μ
			17μ
			12μ

160x120	320x240	320x256	384x288	480x384	640x480	640x512	672x544	1024x768	1280x1024	Page
3.8	7.6		9.0							
2.6	5.2		6.2		10.2					74
1.8	3.7		4.4		7.3			11.5		
3.5	7.0		8.4							
2.4	4.8		5.7		9.6					75
1.7	3.4		4.1		6.8			10.8		
3.5	7.0		8.4							
2.4	4.8		5.7		9.6					76
1.7	3.4		4.1		6.8			10.8		
3.1	6.2		7.5							
2.1	4.3		5.0							77
1.5	3.0		3.61		6.0			11.9		
	2.5				5.0			9.9		
3.1	6.1		7.3		12.1					
2.1	4.2		5.0		8.3			13.2		78
1.5	2.9		3.5		5.9			9.3		
3.1	6.1		7.3							
2.1	4.2		5.0		8.3					79
1.5	2.9		3.5		5.9			9.4		
3.1	6.1		7.3		12.1					
2.1	4.2		5.0		8.3			13.2		80
1.5	2.9		3.5		5.9			9.3		
3.0	6.1		7.3							
2.1	4.1		4.9		8.2					81
1.5	2.9		3.5		5.8			9.3		
3.1	6.1		7.3							
2.1	4.2		5.0		8.3					82
1.5	2.9		3.5		5.9			9.4		
2.3	4.6		5.5		9.1					
1.6	3.1		3.7		6.2			9.9		83
1.1	2.2		2.6		4.4			7.0		
2.3	4.6		5.5		9.1					
1.6	3.1		3.7		6.2			9.9		84
1.1	2.2		2.6		4.4			7.0		
2.3	4.6		5.5		9.1					
1.6	3.1		3.7		6.2			9.8		85
1.1	2.2		2.6		4.4			7.0		
2.3	4.6		5.5		9.1					
1.6	3.1		3.7		6.2			9.8		86
1.1	2.2		2.6		4.4			7.0		
1.5	3.1		3.7		6.1					
1.0	2.1		2.5		4.2			6.7		87
0.7	1.5		1.8		2.9			4.7		
1.1	2.2		2.6		4.4					
0.7	1.5		1.8		3.0			4.7		88
0.5	1.0		1.6		2.1			3.3		
1.7	3.4		4.1							
1.2	2.3		2.8		4.6					90
0.8	1.6		2.0		3.3			5.2		

Sub category	P/N	Description	Pixel pitch
LWIR for uncooled cameras			
Multiple FOV	65036	60/180mm f/1.4	25μ
			17μ
			12μ
Zoom	680164	15-60mm f/1.4	25μ
			17μ
			12μ
Zoom <div>NEW</div>	680386	15-75 mm f/1.2	25μ
			17μ
			12μ
Zoom	680090	15-100mm f/1.4	25μ
			17μ
			12μ
Zoom	680151	30-100mm f/1.6	25μ
			17μ
			12μ
Zoom <div>NEW</div>	680320	26-105mm f/1.6	25μ
			17μ
			12μ
Zoom	680119	25-150mm f/1.4	25μ
			17μ
			12μ
Zoom	680157	25-225mm f/1.5	25μ
			17μ
			12μ
Zoom	680264	40-300mm f/1.5	25μ
			17μ
			12μ
MWIR for cooled cameras			
Multiple FOV	65103	50/150mm f/4.0	30μ
			20μ
			15μ
Multiple FOV	680024	25/80/320mm f/4.0	30μ
			20μ
			15μ
Multiple FOV <div>NEW</div>	680374	35/110/450 mm f/4.0	30μ
			20μ
			15μ
Zoom	680209	19-200mm f/4.0	30μ
			20μ
			15μ
Zoom	65196	19-275mm f/5.5	30μ
			20μ
			15μ
Zoom <div>NEW</div>	680314	20-275mm f/5.5	30μ
			20μ
			15μ

160x120	320x240	320x256	384x288	480x384	640x480	640x512	672x544	1024x768	1280x1024	Page
1.3	2.5		3.1		5.1					
0.9	1.7		2.1		3.5			5.6		92
0.6	1.2		1.5		2.4			3.9		
3.8	7.6		9.2		-			-		
2.6	5.2		-		44.2			-		94
-	3.7		-		30.2			-		
				37.9						
				25.3		43.4				96
				17.7		29.9				
2.3	4.6		5.5		9.1					
1.6	3.1		3.7		6.2			9.9		98
1.1	2.2		2.6		4.4			7.0		
2.3	4.6		5.5		9.1					
1.6	3.1		3.7		6.2			9.8		100
1.1	2.2		2.6		4.4			7.0		
2.2	4.4		5.2		8.7					
1.5	3.0		3.6		5.9					102
1.0	2.1		2.5		4.2			6.7		
1.5	3.0		3.7		6.1					
1.0	2.1		2.5		4.1			6.6		104
0.7	1.5		1.8		2.9			4.7		
1.02	2.04				4.07					
0.69	1.38		1.66		2.77			4.43		106
0.5	1.0		1.2		1.9			3.1		
0.8	1.5		1.8		3.0					
0.5	1.0		1.2		2.1			3.3		108
0.4	0.7		0.9		1.5			2.3		
	3.6									
	2.4			3.6		4.8				110
	1.8			2.7		3.6				
	1.7			2.5						
	1.1			1.7		2.2				112
	0.9			1.3		1.7				
	1.2			1.8		2.3				
	0.8			1.2		1.6				114
	0.6			0.9		1.2				
	2.8									
	1.9			2.8						116
	1.4			2.1		2.8				
	2.0			2.0						
	1.3			1.5						118
	1.0					2.0				
				28.0						120
				20.9		28.0				

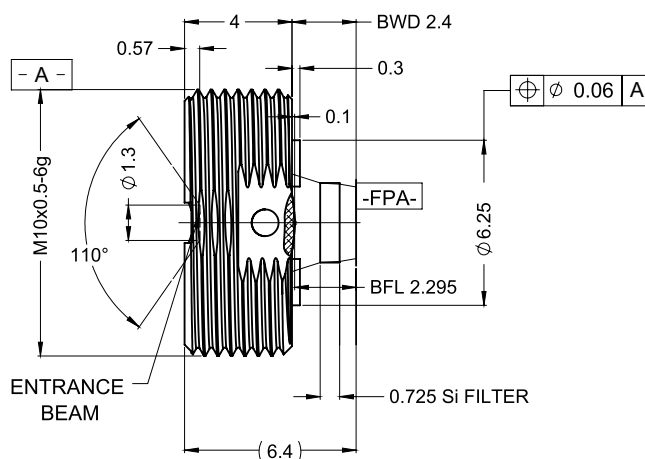
Sub category	P/N	Description	Pixel pitch
MWIR for cooled cameras			
Zoom	680084	15-300mm f/4.0	30μ
			20μ
			15μ
Zoom NEW	680313	15-300mm f/5.5	30μ
			20μ
			15μ
Zoom	680160	21-420mm f/4.0	30μ
			20μ
			15μ
Zoom NEW	680384 & 680385	30-600mm f/4.0	30μ
			20μ
			15μ
Zoom	680294 & 680295	35-690mm f/4.0	30μ
			20μ
			15μ
Zoom	680102-004	48.5-700mm f/5.5	30μ
			20μ
			15μ
Zoom	680072	28-850mm f/5.5	30μ
			20μ
			15μ
Extender	65065	1.4x Extender	
Extender	680011	2.5X Extender	
1-FOV NEW	680189	75mm f/1.2	30μ
			20μ
			15μ

160x120	320x240	320x256	384x288	480x384	640x480	640x512	672x544	1024x768	1280x1024	Page
	1.8									
	1.2			1.8		2.4				122
	0.9			1.4		1.8				
		1.8		2.7						
		1.2		1.8		2.4				124
		0.9		1.4		1.8				
	1.3									
	1.2			1.3		1.7				126
	0.64			1.0		1.3				
	0.9			1.3						
	0.6			0.9		1.2				128
	0.5			0.7		0.9				
	0.8									
	0.5			0.8		1.0				130
	0.4			0.6		0.8				
	0.8									
	0.5			0.8						132
	0.4			0.6		0.8				
	0.6			1.0		1.3				
	0.4			0.6		0.9				134
	0.3			0.5		0.6			1.3	
										136
										137
	7.3									
	4.9			7.3						138
	3.7			5.5		7.3				

SuplR 1.8mm f/1.35, Fixed Athermalized 680330

NEW


TYPICAL ICD



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ					
17μ					
12μ	60.5				

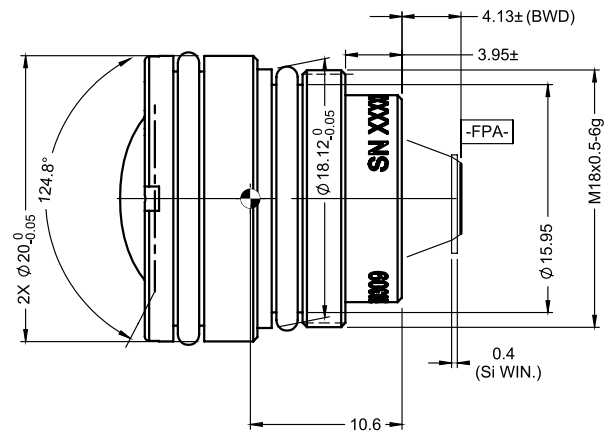
Property	Value
Optical	
Focal Length	1.8mm
F/#	1.35
Average Transmission (8-12μm)	88%
Back Focal Length	1.78mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	0.2m to infinity
Focus Range	0.1m to infinity
Weight	1gr
Max. Dimensions	Ø4mm x 10mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	No sealed
Configurations	
680330-001	High Durability
680330-002	Hard Carbon

SuplR 2.4mm f/1.0, Fixed Athermalized 680309

NEW



TYPICAL ICD

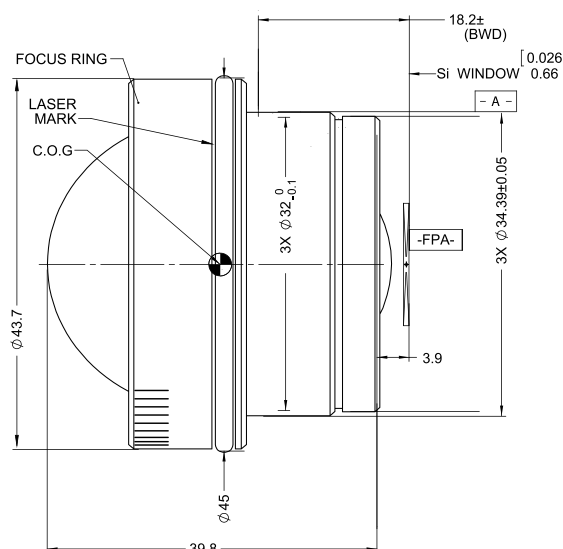


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	96.1				
17μ	64.8				
12μ	45.8	91.9			

Property	Value
Optical	
Focal Length	2.4mm
F/#	1
Average Transmission (8-12μm)	84%
Back Focal Length	5.23mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	0.5m to infinity
Focus Range	0.1m to infinity
Weight	13.2gr
Max. Dimensions	Ø20mm x 19.74mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680309-001	High Durability
680309-002	Hard Carbon

SuplR 2.6mm f/1.4, Fixed Athermalized 680239

TYPICAL ICD



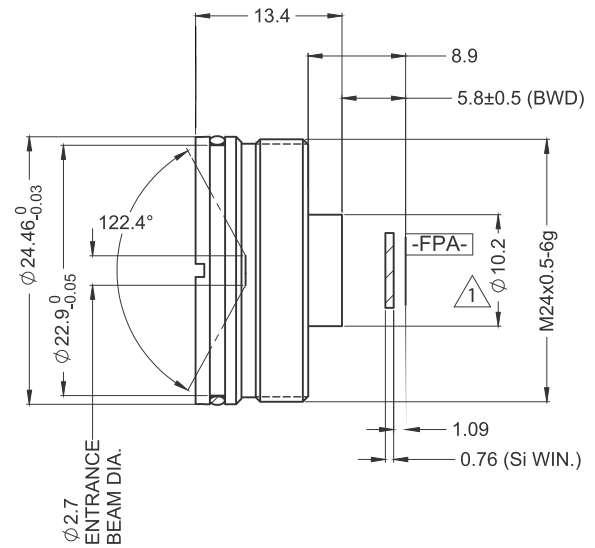
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	87.3	176.0	180	180	
17μ	59.3	118.9	143.0	180	180
12μ	41.9	83.8	100.5	168.8	180

Property	Value
Optical	
Focal Length	2.6mm
F/#	1.4
Average Transmission (8-12μm)	82% (HC)
Back Focal Length	8.03mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	0.1m to infinity
Depth of Field	0.25m to infinity
Weight	90gr
Max. Dimensions	Ø43.7mm x 39.6mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680239-001	High Durability BWD 18.2
680239-002	Hard Carbon BWD 18.2
680239-003	M34x0.5 High Durability
680239-004	M34x0.5 Hard Carbon

SupIR 3.8mm f/1.4, Fixed Athermalized 680235



TYPICAL ICD

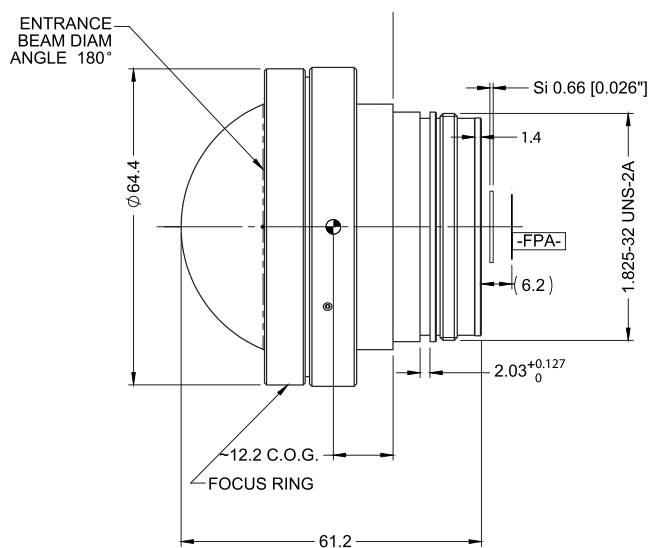


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	63.0				
17μ	41.8	89.9			
12μ	29.2	60.3			

Property	Value
Optical	
Focal Length	3.8mm
F/#	1.4
Average Transmission (8-12μm)	88% (HC)
Back Focal Length	9.23mm
Mechanical	
Focus Mechanism	Fixed adjustable
Depth of Field	1m to infinity
Focus Range	0.1m to infinity
Weight	8.5gr
Max. Dimensions	Ø21.4mm x 11.3mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680235-001	High Durability M24x0.5
680235-002	Hard Carbon M24x0.5
680235-003	High Durability M19x0.5
680235-004	Hard Carbon M19x0.5

SupIR 4.2mm f/1.4, Fixed Athermalized 680240

TYPICAL ICD


HD
FORMAT


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	54.6	109.3	131.3	180	
17μ	37.1	74.3	89.2	148.9	180
12μ	26.2	52.5	62.9	104.8	168.5

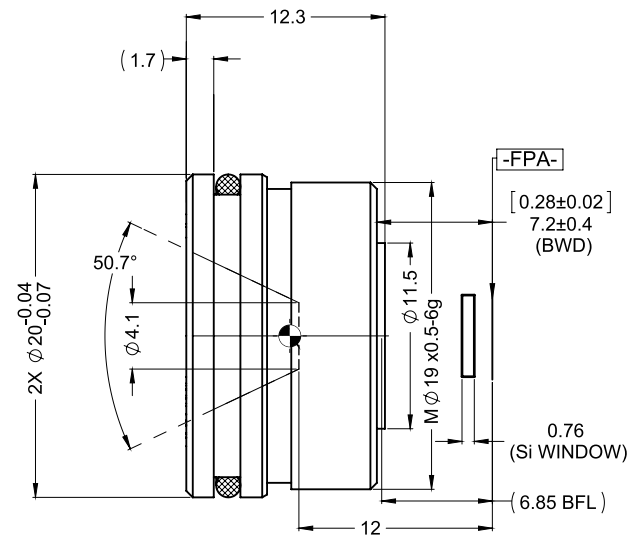
Property	Value
Optical	
Focal Length	4.2mm
F/#	1.4
Average Transmission (8-12μm)	81% (HC)
Back Focal Length	12.44mm
Mechanical	
Focus Mechanism	Fixed
Depth of Field	1m to infinity
Focus Range	0.1mm to infinity
Weight	290gr
Max. Dimensions	Ø63mm x 60.7mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680240-001	High Durability
680240-002	Hard Carabon

SupIR 4.5mm f/1.1, Fixed Athermalized 680284

NEW



TYPICAL ICD



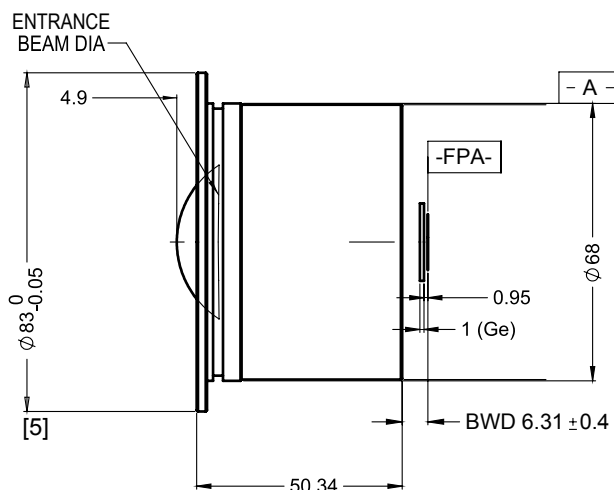
HFOV _[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	50.7				
17μ	34.1				
12μ	24.0	48.5			

Property	Value
Optical	
Focal Length	4.5mm
F/#	1.1
Average Transmission (8-12μm)	89%
Back Focal Length	6.3mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	1m to infinity
Focus Range	0.1m to infinity
Weight	8gr
Max. Dimensions	Ø 20.0mm x 12.3mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680284-001	High Durability
680284-002	Hard Carbon

SuplR 4.6mm f/1.2, Fixed Athermalized 680214*



TYPICAL ICD



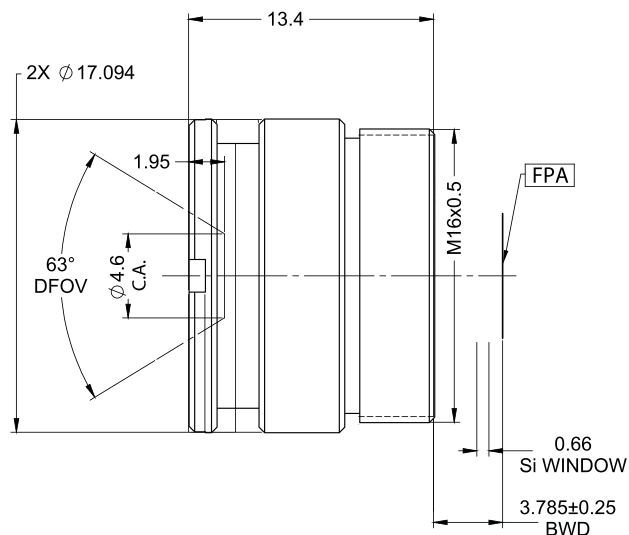
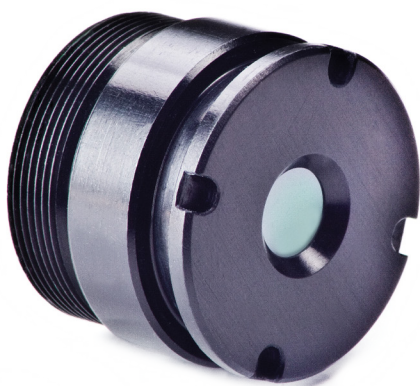
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	46.9	86.1	99.8		
17μ	32.7	61.9	71.2	110.1	
12μ	23.1	44.6	52.5	81.5	117.8

Property	Value
Optical	
Focal Length	4.6mm
F/#	1.2
Average Transmission (8-12μm)	84%
Back Focal Length	10mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	1.2m to infinity
Focus Range	0.1m to infinity
Weight	332 gr
Max. Dimensions	Ø 83 mm x 50.34 mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-40°C to +80°C
Sealing	IP 67 front element only
Configurations	
680214-001	Hard Carbon

* Requires export license

SuplR 6.3mm f/1.4, Fixed Athermalized 680246

TYPICAL ICD



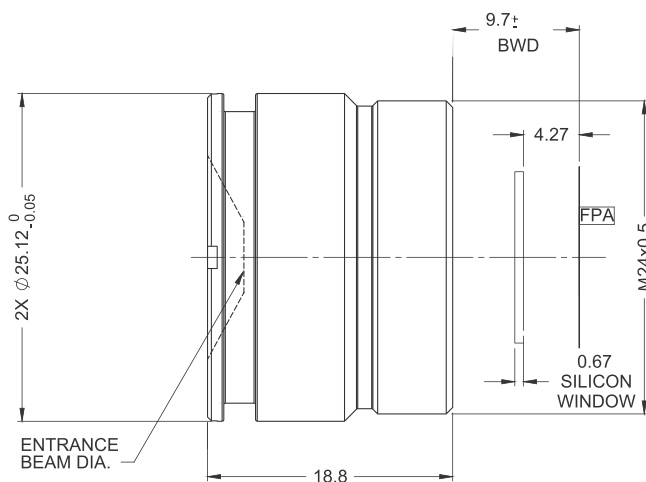
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	36.5				
17μ	24.7	50.1			
12μ	17.4	35.0			

Property	Value
Optical	
Focal Length	6.3mm
F/#	1.4
Average Transmission (8-12μm)	87%
Back Focal Length	8.34mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	2m to infinity
Focus Range	0.5m to infinity
Weight	6.5gr
Max. Dimensions	Ø17.1mm x 13.4mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680246-001	Hard Carbon

SuplR 7.5mm f/1.4, Fixed Athermalized 680143



TYPICAL ICD

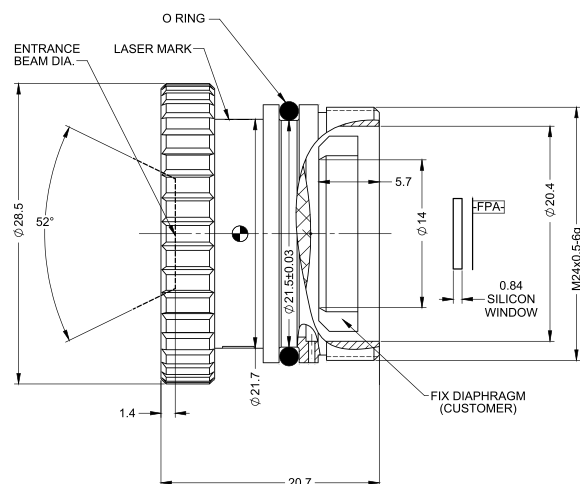


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	30.7	63.4	77.7		
17μ	20.8	42.1	51.0	90.2	
12μ	14.7	29.5	35.5	60.6	

Property	Value
Optical	
Focal Length	7.5mm
F/#	1.4
Average Transmission (8-12μm)	83% (HC)
Back Focal Length	11.97mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	0.2m to infinity
Depth of Field	2m to infinity
Weight	25gr
Max. Dimensions	Ø25.12mm x 18.8mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680143-002	M24x0.5 BWD 9.7 mm Hard Carbon
680143-003	M34x0.5 BWD 9.7 mm Hard Carbon
680143-004	M19x0.5 BWD 3.3 mm Hard Carbon

Lens 8mm f/1.0, Radiometric Fixed Focus 680263

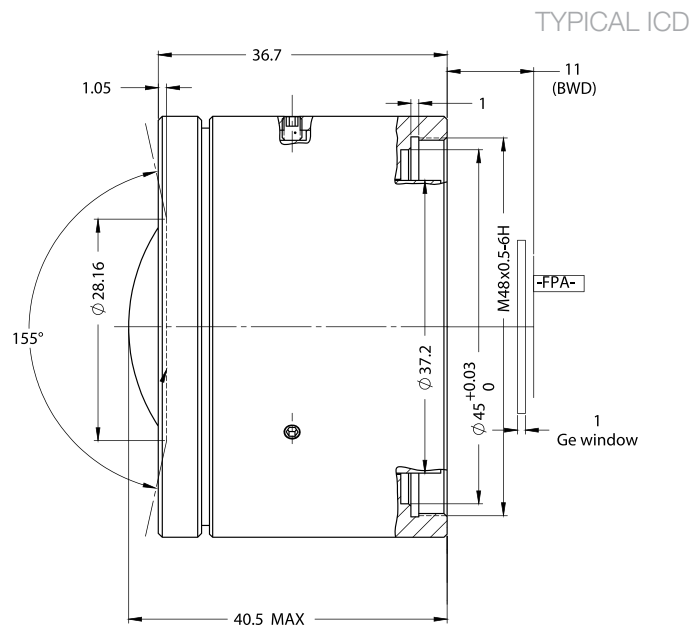
TYPICAL ICD



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	29.3	63.7			
17μ	19.7	40.7			
12μ	13.8	28.1	34.1	60.5	

Property	Value
Optical	
Focal Length	8mm
F/#	1.0
Average Transmission (8-12μm)	93%
Back Focal Length	14.6mm in air
Mechanical	
Focus Mechanism	Manual
Depth of Field	4.5m to infinity
Focus Range	0.3m to infinity
Weight	20gr
Max. Dimensions	Ø28.5mm x 20.7mm
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680263-001	High Efficiency

SuplR 8.2mm f/1.0, Manual Focus 680092



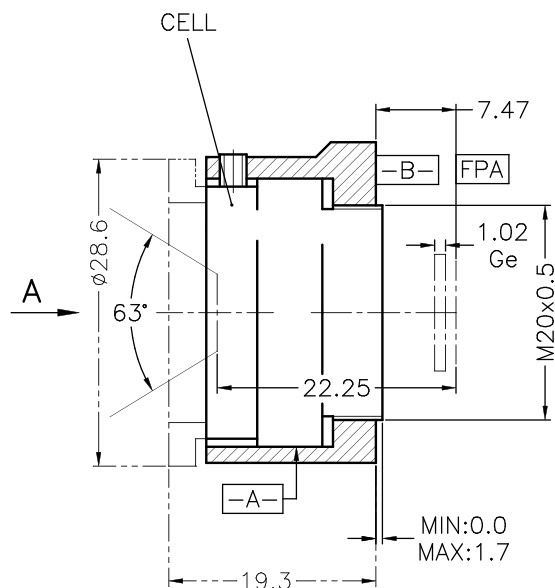
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	27.7	55.8	67.7	120.0	
17 μ	18.9	37.7	45.3	77.5	
12 μ	13.4	26.6	31.9	53.5	88.7

Property	Value
Optical	
Focal Length	8.2mm
F/#	1.0
Average Transmission (8-12 μ m)	87% (HC)
Back Focal Length	13.65mm in air
Mechanical	
Focus Mechanism	Manually adjustable
Focus Range	0.3m to infinity
Depth of Field	5m to infinity
Weight	190gr
Max. Dimensions	Ø53.5mm x 45.2mm
Environmental	
Operating Temperature	-20°C to +60°C
Storage Temperature	-40°C to +70°C
Sealing	Not sealed
Configurations	
680092-001	Hard Carbon
680092-002	High Durability
680092-003	High Durability without adapter

SuplR 8.5mm f/1.2, Fixed Athermalized 65096



TYPICAL ICD

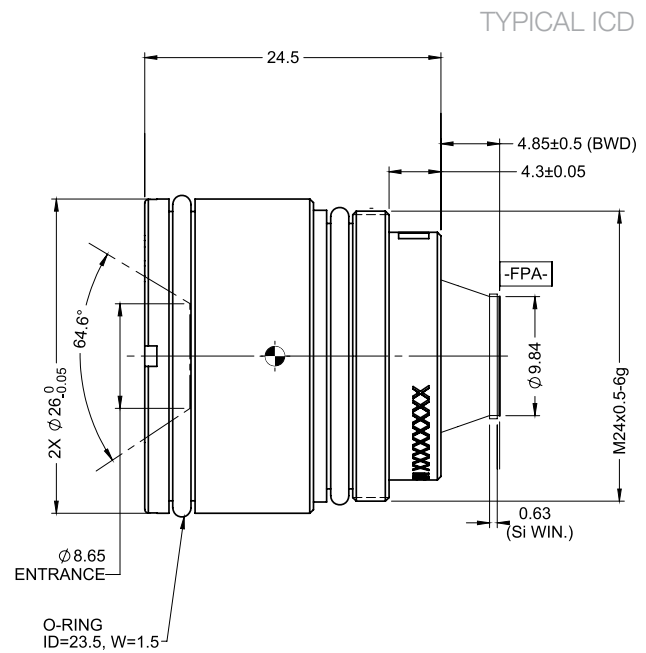


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	26.8				
17μ	18.2				
12μ	12.9				

Property	Value
Optical	
Focal Length	8.5mm
F/#	1.2
Average Transmission (8-12μm)	99% (HE)
Back Focal Length	10.13mm in air
Mechanical	
Focus Mechanism	Manually adjustable
Focus Range	0.2m to infinity
Depth of Field	4m to infinity
Weight	29gr
Max. Dimensions	Ø32mm x 17mm
Environmental	
Operating Temperature	-40°C to +75°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
65096	M20 High Efficiency
65096-03	M25 High Efficiency

SuplR 8.7mm f/1.2, Fixed Athermalized 680310

NEW

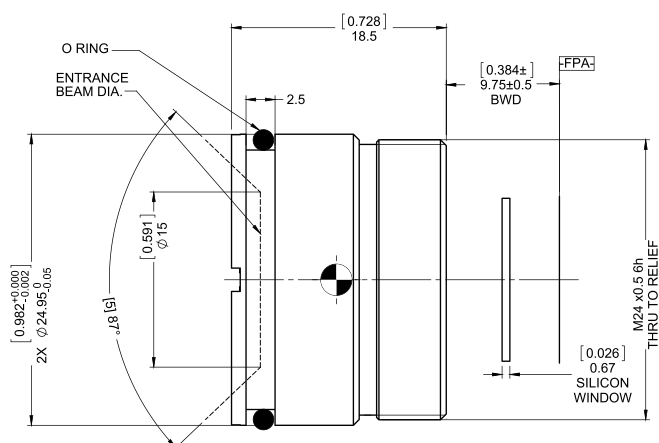
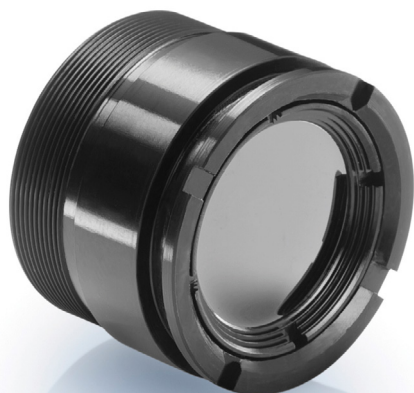


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	26.0	52.2	63.0		
17μ	17.7	35.3	42.4		
12μ	12.6	24.9	29.9	50.1	

Property	Value
Optical	
Focal Length	8.7mm
F/#	1.2
Average Transmission (8-12μm)	87%
Back Focal Length	7.39mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	6m to infinity
Focus Range	0.2m to infinity
Weight	28.5gr
Max. Dimensions	Ø26mm x 24.5mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680310-001	High Durability
680310-002	Hard Carbon

SupIR 8.9mm f/1.4, Radiometric Athermalized 680275

TYPICAL ICD



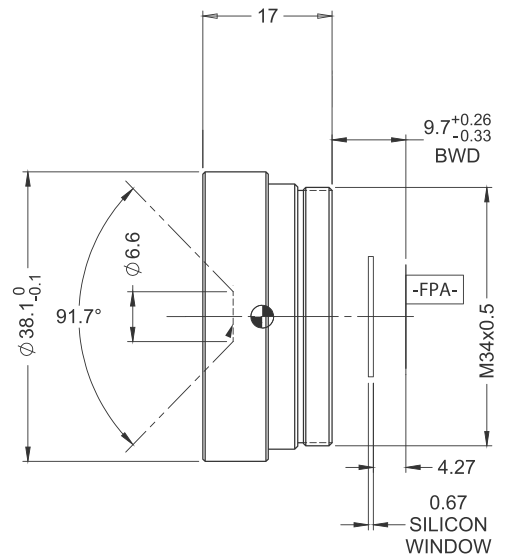
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	25.7	51.1	61.1		
17μ	17.5	34.9	41.8	69.0	
12μ	12.1	24.3	29.1		

Property	Value
Optical	
Focal Length	8.9mm
F/#	1.4
Average Transmission (8-12μm)	86%
Back Focal Length	11.55mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	5m to infinity
Focus Range	0.2m to infinity
Weight	22gr
Max. Dimensions	Ø25.12mm x 18.5mm
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Sealing	IP 67 front element only
Configurations	
680275-001	High Durability
680275-002	Hard Carbon

SupIR 9mm f/1.4, Fixed Athermalized 680258



TYPICAL ICD



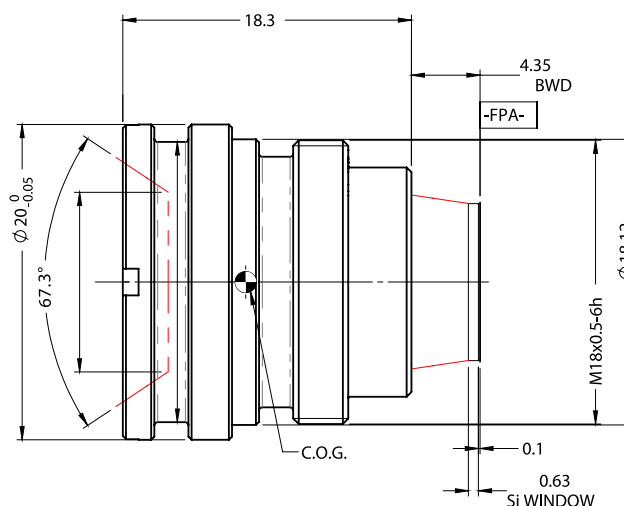
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	25.4	51.4	62.2		
17μ	17.2	34.6	41.7	71.2	
12μ	12.1	24.3	29.2	49.3	81.5

Property	Value
Optical	
Focal Length	9mm
F/#	1.4
Average Transmission (8-12μm)	87%
Back Focal Length	12.37mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	5m to infinity
Focus Range	0.5m to infinity
Weight	43gr
Max. Dimensions	Ø38.1mm x 17mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680258-003	High Durability
680258-004	Hard Carbon

SuplR 9.2mm f/1.0, Fixed Athermalized 680407

NEW


TYPICAL ICD



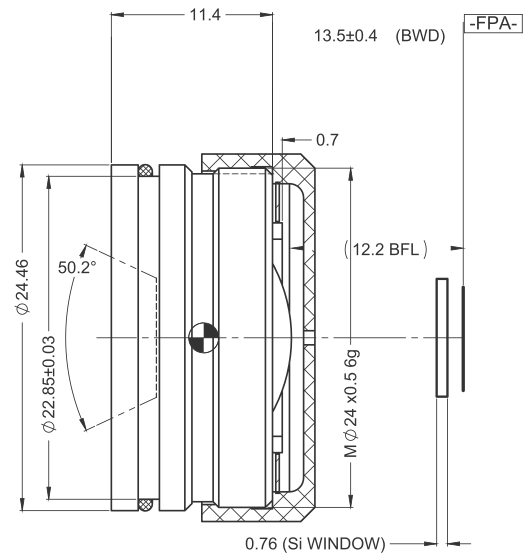
HFOV[deg]	160x120	320x240	384x288	640x480	672x544	1024x768
25 μ	25.2	52.3	65.1			
17 μ	17.0	34.6	41.9	77.9	84.8	
12 μ	12.0	24.2	29.1	50.0	52.8	
10 μ	10.0	20.1	24.2	41.0	43.2	71.1

Property	Value
Optical	
Focal Length	9.2mm
F/#	1.0
Average Transmission (8-12 μ m)	87%(HD); 84%(HC)
Back Focal Length	6.85mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	4m to infinity
Focus Range	0.5m to infinity
Weight	13gr
Max. Dimensions	Ø20mm x 18.3mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680407-001	High Durability
680407-002	Hard Carbon

SupIR 9.3mm f/1.3, Manual Focus 680269



TYPICAL ICD



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	25.0				
17μ	17.0	34.0			
12μ	12.0	24.0			

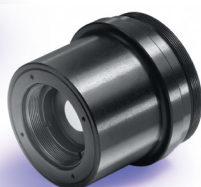
Property	Value
Optical	
Focal Length	9.3mm
F/#	1.3
Average Transmission (8-12μm)	88%
Back Focal Length	11.6mm in air
Mechanical	
Focus Mechanism	Manual
Depth of Field	5m to infinity
Focus Range	0.5m to infinity
Weight	16gr
Max. Dimensions	Ø 24.5mm x 12.1mm
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Sealing	IP 67 front element only
Configurations	
680269-001	High Durability
680269-002	Hard Carbon

SupIR 9.8mm f/1.25, Fixed Athermalized 680138

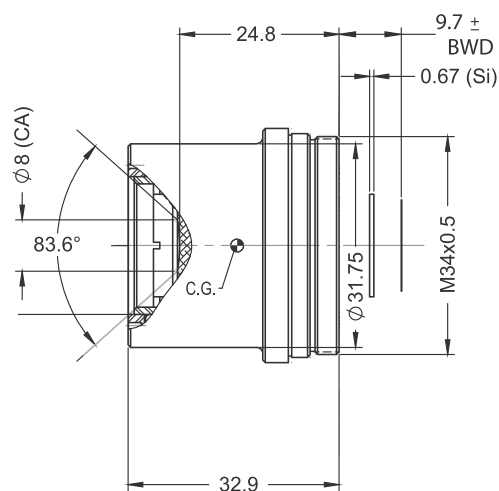
TYPICAL ICD



680138-001



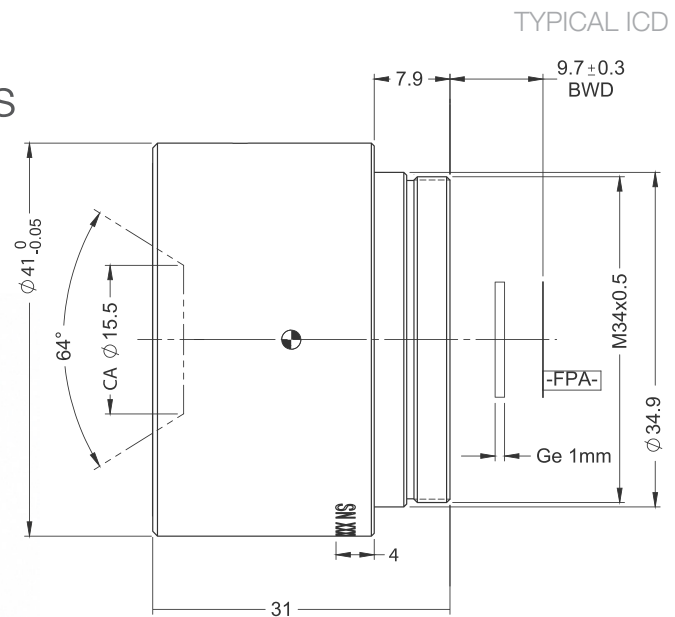
680138-002



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	23.2	46.9	56.7		
17μ	15.7	31.6	38.0	64.9	
12μ	11.1	22.2	26.7	44.9	74.3

Property	Value
Optical	
Focal Length	9.8mm
F/#	1.25
Average Transmission (8-12μm)	82%
Back Focal Length	13.94mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	0.3m to infinity
Depth of Field	5m to infinity
Weight	75gr
Max. Dimensions	Ø31.75mm x 36.5mm
Environmental	
Operating Temperature	-30°C to +70°C
Storage Temperature	-51°C to +95°C
Sealing	IP 67 for 680138-002
Configurations	
680138-001	High Efficiency, Unsealed
680138-002	Hard Carbon, IP67

SupIR 11mm f/1.05, Athermalized Manual Focus 680021

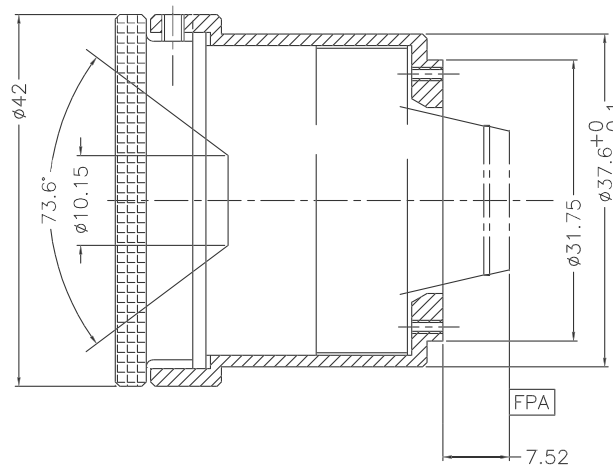


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	20.5	41.4	50.1		
17 μ	13.9	27.9	33.6	57.3	
12 μ	9.8	19.6	23.6	39.7	

Property	Value
Optical	
Focal Length	11mm
F/#	1.05
Average Transmission (8-12 μ m)	94% (HD)
Back Focal Length	12.48mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	0.2m to infinity
Depth of Field	2.4m to infinity
Weight	87gr
Max. Dimensions	$\varnothing 38.1\text{mm} \times 37.6\text{mm}$
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +110°C
Sealing	IP 68 front element only
Configurations	
680021-004	High Durability
680021-006	Hard Carbon

SuplR 12.6mm f/1.25, Fixed Athermalized 65166

TYPICAL ICD

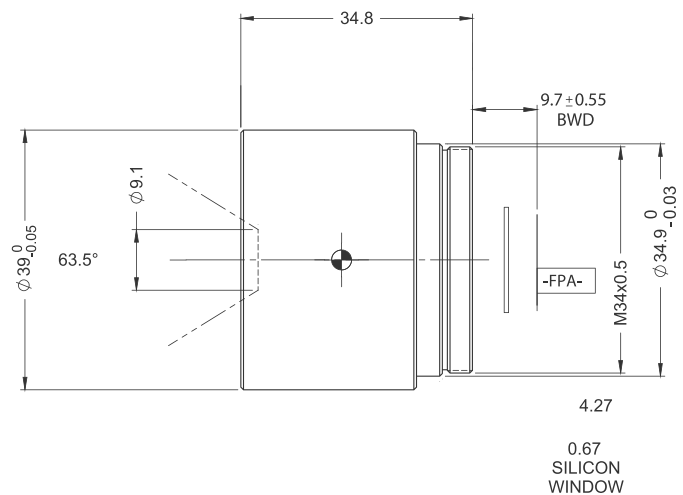


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	18.2	36.5	44.0		
17μ	12.3	24.7	29.7	50.0	
12μ	8.7	17.4	20.9	35.0	56.7

Property	Value
Optical	
Focal Length	12.6mm
F/#	1.25
Average Transmission (8-12μm)	97% (HD)
Back Focal Length	14.52mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	1m to infinity
Depth of Field	10m to infinity
Weight	88gr
Max. Dimensions	Ø42mm x 37mm
Environmental	
Operating Temperature	-20°C to +50°C
Storage Temperature	-20°C to +70°C
Sealing	Consult factory
Configurations	
65166	High Durability

SuplR 12.8mm f/1.4, Fixed Athermalized 680256

TYPICAL ICD



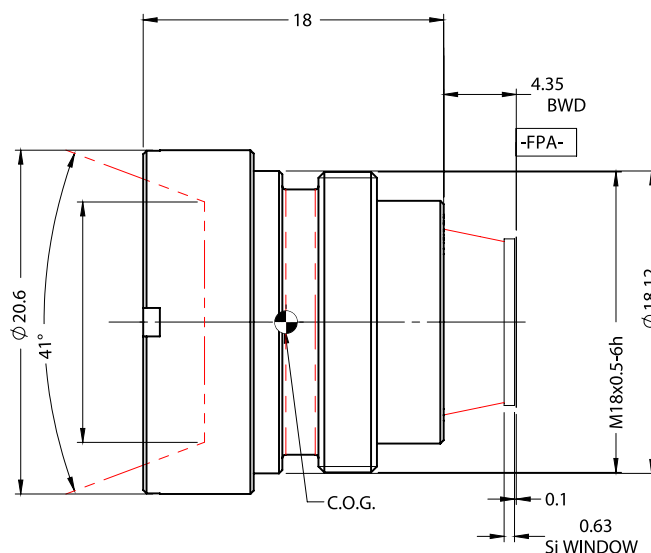
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	18.0	36.4	43.9	76.0	
17μ	12.2	24.6	29.5	50.0	
12μ	8.6	17.3	20.8	34.9	56.8

Property	Value
Optical	
Focal Length	12.8mm
F/#	1.4
Average Transmission (8-12μm)	86%
Back Focal Length	12mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	5m to infinity
Focus Range	0.5m to infinity
Weight	79 gr
Max. Dimensions	Ø39 mm x 34.8 mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 68 front element only
Configurations	
680256-001	High Durability
680256-002	Hard Carbon

SuplR 13.6mm f/1.0, Fixed Athermalized 680412

NEW


TYPICAL ICD

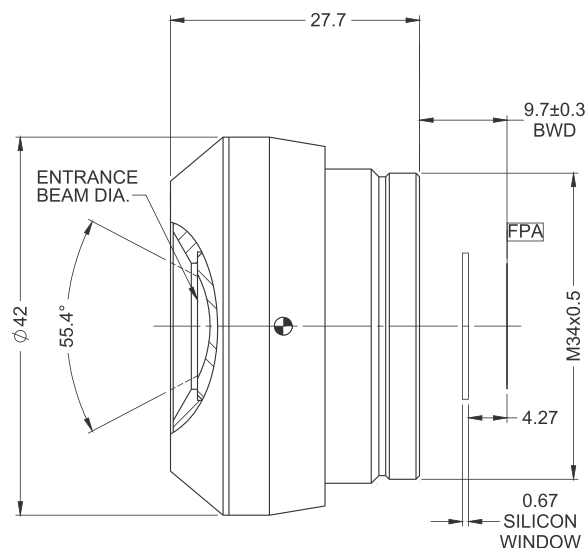


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	16.8	33.3	40.0		
17μ	11.5	22.8	27.3		
12μ	8.1	16.2	19.3	32.0	
10μ	6.8	13.5	16.2	29.8	

Property	Value
Optical	
Focal Length	12.6mm
F/#	1.0
Average Transmission (8-12μm)	86% (HD); 84.5% (HC)
Back Focal Length	4.8mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	9m to infinity
Focus Range	1m to infinity
Weight	12.5gr
Max. Dimensions	Ø34 mm x 29.45mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 68 front element only
Configurations	
680412-001	High Durability
680412-002	Hard Carbon

SupIR 14.25mm f/1.2, Fixed Athermalized 65183

TYPICAL ICD

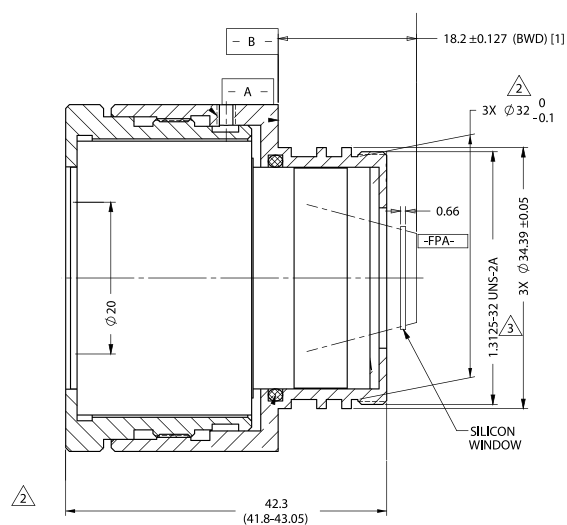
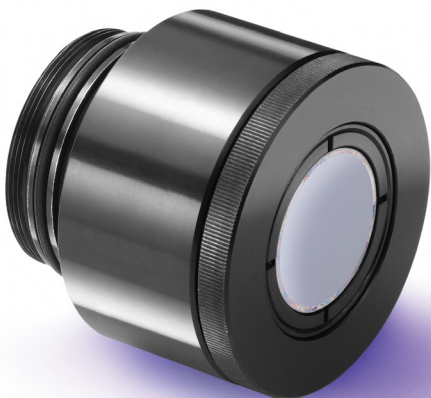


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	16.1	32.3	38.8		
17μ	10.9	2.9	26.3	44.0	
12μ	7.7	15.4	18.5	30.9	49.8

Property	Value
Optical	
Focal Length	14.25mm
F/#	1.2
Average Transmission (8-12μm)	89% (HC)
Back Focal Length	15.35mm in air
Mechanical	
Focus Mechanism	Fixed Focus
Focus Range	0.6m to infinity
Depth of Field	15m to infinity
Weight	75gr
Max. Dimensions	Ø42mm x 30.5mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-40°C to +90°C
Sealing	IP 67 front element only
Configurations	
65183-01	Length 30.5mm, Ø42mm, Unsealed
65183-03	Length 30.5mm, Ø45mm, High Durability, Sealed
65183-04	Length 32.3mm, Ø42mm, High Durability, Sealed
65183-06	Length 32.3mm, Ø42mm, Hard Carbon, Sealed
65183-07	M34x0.5 BWD 6.64 mm HE Coating
65183-13	M34x0.5 BWD 9.7 mm Hard Carbon

SuplR 15.6mm f/1.0, Athermalized Manual Focus 680054

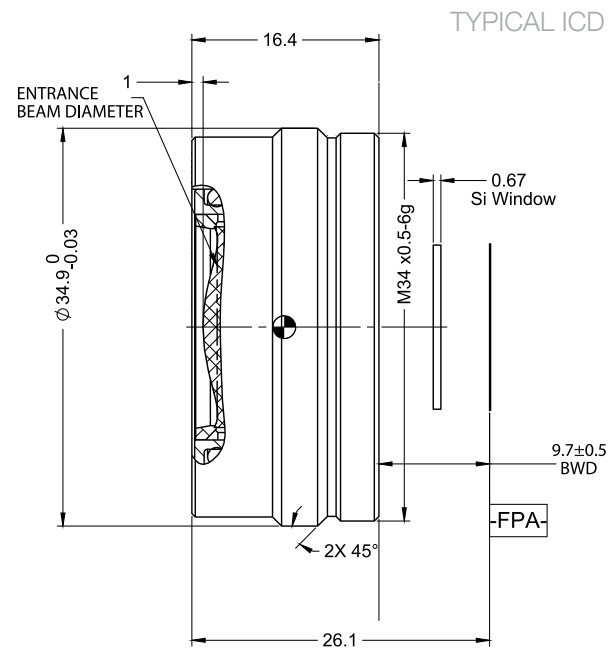
TYPICAL ICD



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	14.6	29.3	35.2		
17 μ	9.9	19.8	23.9	40.0	
12 μ	7.0	14.0	16.8	28.1	45.4

Property	Value
Optical	
Focal Length	15.6mm
F/#	1.0
Average Transmission (8-12 μ m)	87% (HC)
Back Focal Length	18mm in air
Mechanical	
Focus Mechanism	Manually adjustable
Focus Range	0.75m to infinity
Depth of Field	5m to infinity
Weight	116gr
Max. Dimensions	Ø45.7mm x 43.05mm
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-45°C to +100°C
Sealing	IP 67 front element only
Configurations	
680054-001	Hard Carbon
680054-003	M34x0.5 BWD 9.7 mm Hard Carbon

SupIR 16.7mm f/1.25, Fixed Athermalized 680186



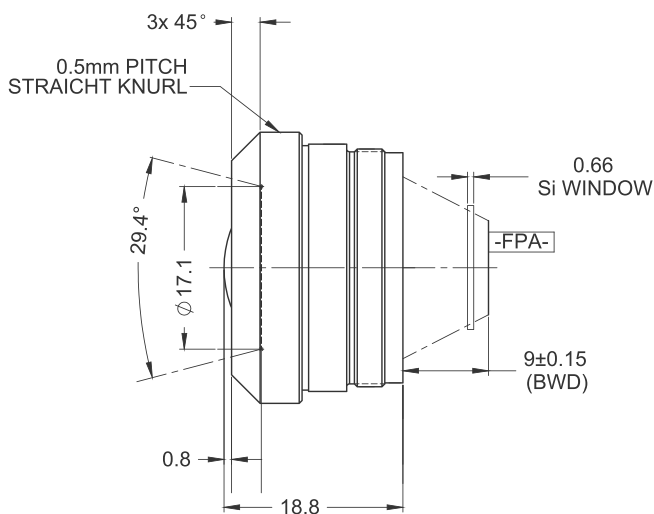
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	13.7	27.5	33.0		
17μ	9.3	18.7	22.4	37.5	
12μ	6.6	13.2	15.8	26.4	42.5

Property	Value
Optical	
Focal Length	16.7mm
F/#	1.25
Average Transmission (8-12μm)	86%
Back Focal Length	11.41mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	1.4m to infinity
Depth of Field	10m to infinity
Weight	11gr
Max. Dimensions	Ø22.4mm x 21.9mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680186-003	High Durability
680186-004	Hard Carbon

SuplR 19mm f/1.1, Fixed Athermalized 65221



TYPICAL ICD



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	11.9	23.6	28.3		
17μ	8.1	16.1	19.3	32.1	
12μ	5.7	11.4	13.7	22.7	36.3

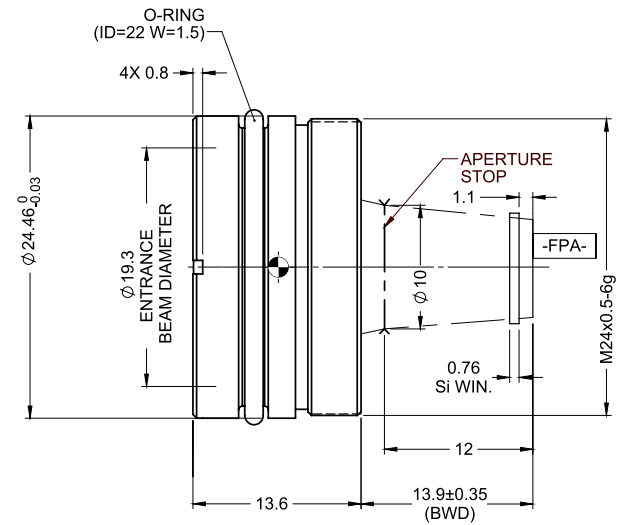
Property	Value
Optical	
Focal Length	19mm
F/#	1.1
Average Transmission (8-12μm)	93% (HD)
Back Focal Length	11.51mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	0.6m to infinity
Depth of Field	12.5m to infinity
Weight	20gr
Max. Dimensions	Ø28.5mm x 18.1mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-57°C to +105°C
Sealing	65221-02 Not sealed 65221-04 IP67 front element only
Configurations	
65221-02	Hard Carbon not sealed
65221-04	Hard Carbon IP 67 front element only sealed

SuplR 19.8mm f/1.2, Athermalized Fixed 680312

NEW



TYPICAL ICD

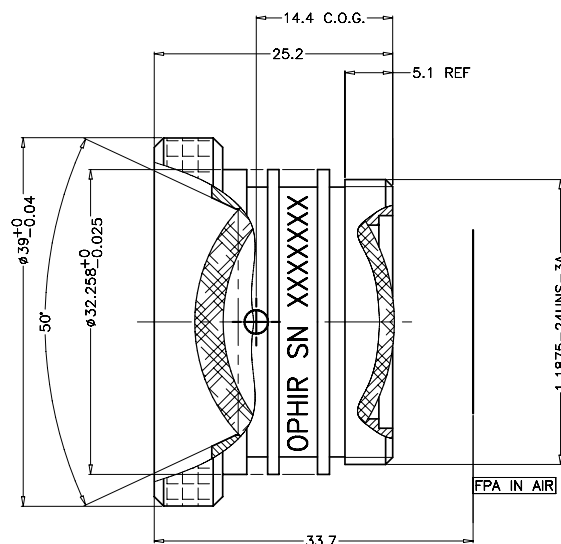


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	11.5	22.6			
17μ	7.8	15.5	18.6		
12μ	5.5	11.0	13.2	21.7	

Property	Value
Optical	
Focal Length	19.8mm
F/#	1.2
Average Transmission (8-12μm)	87%
Back Focal Length	13.45mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	20m to infinity
Focus Range	0.5m to infinity
Weight	14.9gr
Max. Dimensions	Ø24.46mm x 13.6mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680312-001	High Durability
680312-002	Hard Carbon

SupIR 20mm f/0.85, Fixed Focus 65037

TYPICAL ICD

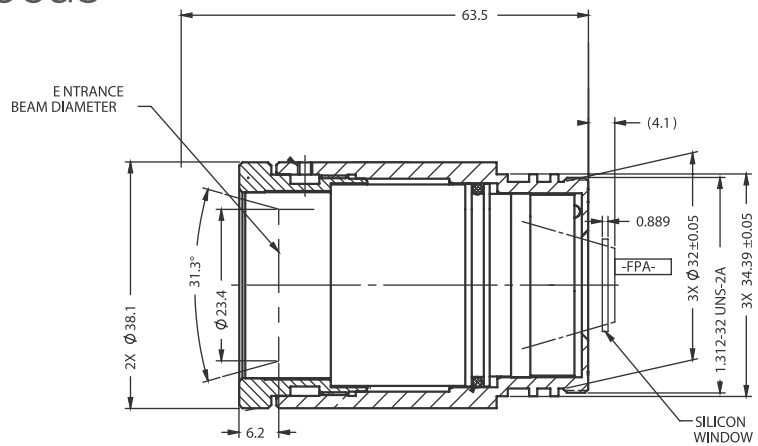


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	11.7	23.1	27.5		
17μ	8.0	15.9	19.0	30.9	
12μ	5.7	11.3	13.5	22.5	34.5

Property	Value
Optical	
Focal Length	20mm
F/#	0.85
Average Transmission (8-12μm)	88% (HC)
Back Focal Length	8.27mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	1.8m to infinity
Depth of Field	40m to infinity
Weight	35.6gr
Max. Dimensions	Ø39mm x 27.74mm
Environmental	
Operating Temperature	-32°C to +49°C
Storage Temperature	-33°C to +71°C
Sealing	IP 67 front element only
Configurations	
65037-02	Hard Carbon
65055-02	3X Beam extender

SupIR 22.2mm f/1.2, Athermalized Manual Focus 680046

TYPICAL ICD



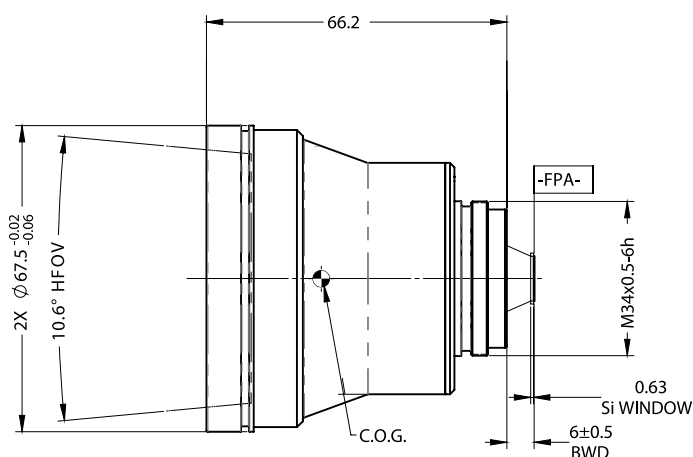
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	10.3	20.7	24.9		
17μ	7.0	14.1	16.9	28.3	
12μ	5.0	9.9	11.9	19.9	32.0

Property	Value
Optical	
Focal Length	22.2mm
F/#	1.2
Average Transmission (8-12μm)	88% (HC)
Back Focal Length	25.6mm in air
Mechanical	
Focus Mechanism	Manually adjustable
Focus Range	0.7m to infinity
Depth of Field	8m to infinity
Weight	155gr
Max. Dimensions	Ø43.5mm x 53.5mm
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680046-001	Hard Carbon

SuplR 23.9mm f/1.2, Fixed Athermalized 680403

NEW


TYPICAL ICD

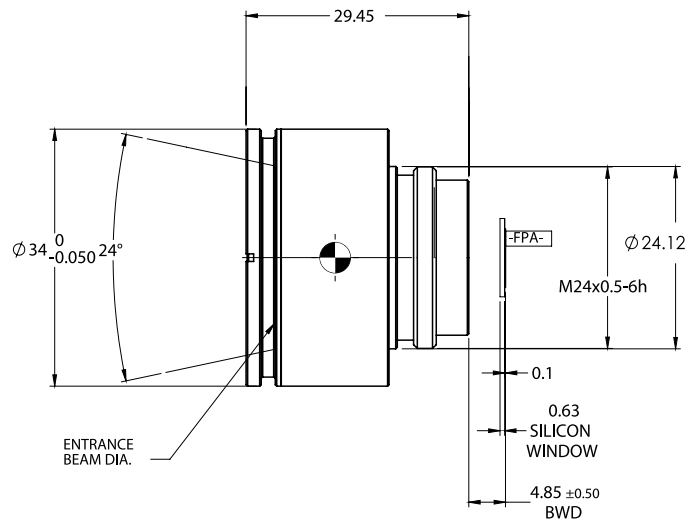


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	9.6	19.1	22.9		
17μ	9.5	13.0	15.6		
12μ	4.6	9.2	11.0	18.3	19.2
12μ	3.8	7.7	9.2	15.3	16.1

Property	Value
Optical	
Focal Length	23.9mm
F/#	1.2
Average Transmission (8-12μm)	93% (HD)/ 90% (HC)
Back Focal Length	9.3mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	0.5m to infinity
Depth of Field	9m to infinity
Weight	32.4gr
Max. Dimensions	Ø33.1mm x 33.6mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680403-001	Hard Durability
680403-002	Hard Carbon

SuplR 24mm f/1.0, Fixed Athermalized 680360

NEW

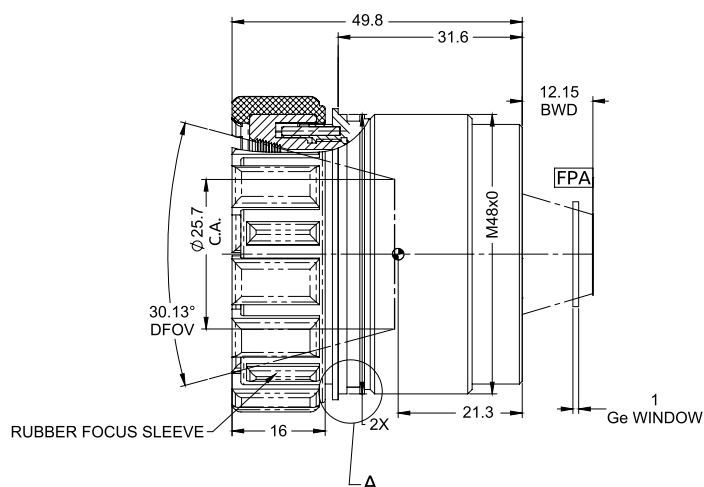


HFOV _[deg]	320x256	640x512	672x544	1280x1024
12μ	9.0	18.0	18.9	
10μ	7.5	15.0	15.8	30.2

Property	Value
Optical	
Focal Length	24mm
F/#	1.0
Average Transmission (8-12μm)	HC > 87%; HD > 92%
Back Focal Length	8.97mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	3m to infinity
Depth of Field	30m to infinity
Weight	37gr
Max. Dimensions	Ø34mm x 29.45mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680360-001	Hard Durability
680360-002	Hard Carbon

SupIR 25mm f/1.0, Athermalized, Manual Focus 680319*

NEW



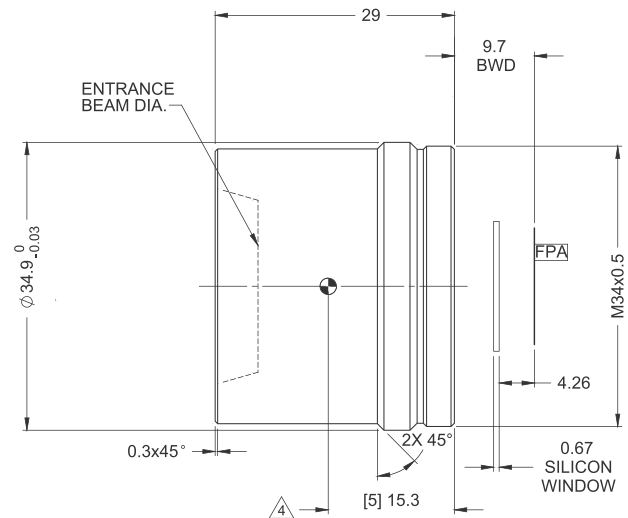
HFOV [deg]	160x120	320x240	384x288	640x480	1024x768
25μ	9.13	18.12	21.63		
17μ	6.22	12.4	14.82	24.4	
12μ	4.4	8.77	10.5	17.4	27.4

Property	Value
Optical	
Focal Length	25mm
F/#	1.0
Average Transmission (8-12 μm)	> 90%
Back Focal Length	13.46mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	1.0m to infinity
Depth of Field	16m to infinity
Weight	134gr
Dimensions	Length 49.8mm, Ø54mm
Environmental	
Operating Temperature	-40°C to +70°C
Storage Temperature	-50°C to +80°C
Sealing	IP68 front element only
Configurations	
680319-001	High Durability
680319-002	Hard Carbon

* Requires export license

SupIR 25mm f/1.2, Fixed Athermalized 680108

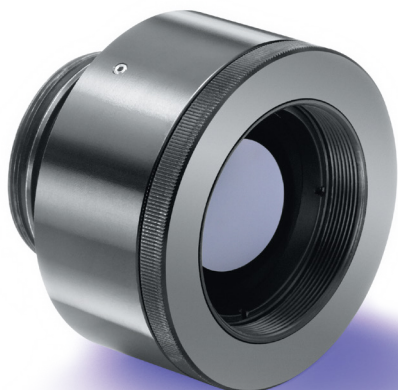
TYPICAL ICD



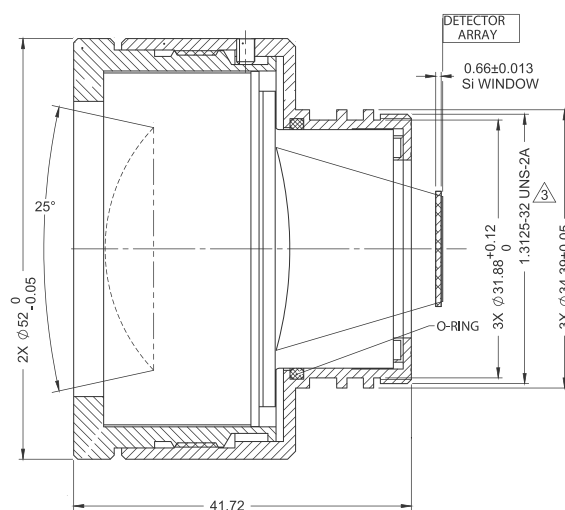
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	9.1	18.2	21.8	36.4	
17μ	6.2	12.4	14.9	24.8	
12μ	4.4	8.7	10.5	17.5	27.9

Property	Value
Optical	
Focal Length	25mm
F/#	1.2
Average Transmission (8-12μm)	89% (HC)
Back Focal Length	17.99mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	0.5m to infinity
Depth of Field	25mm to infinity
Weight	57gr
Max. Dimensions	Ø34.9mm x 29mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680108-001	High Durability
680108-002	Hard Carbon

SupIR 30.5mm f/1.0, Athermalized Manual Focus 680055



TYPICAL ICD



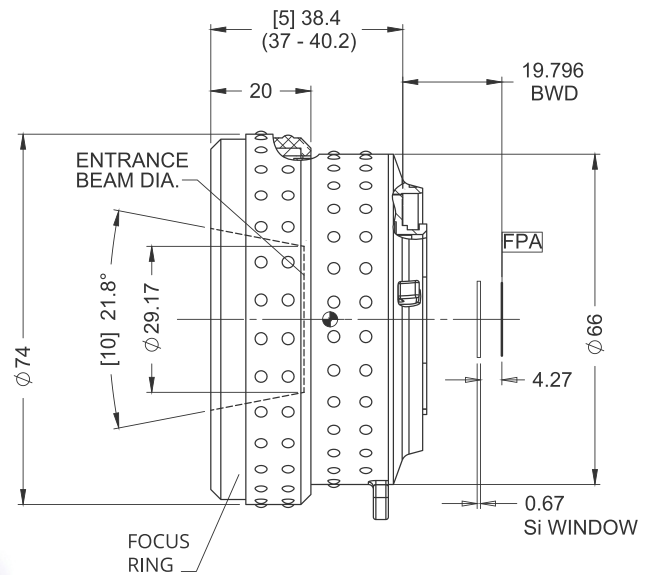
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	7.2	14.4	17.2		
17μ	4.9	9.8	11.8	19.5	
12μ	3.5	6.9	8.3	13.8	21.9

Property	Value
Optical	
Focal Length	30.5mm
F/#	1.0
Average Transmission (8-12μm)	89% (HC)
Back Focal Length	18.4mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	0.75m to infinity
Depth of Field	1m to infinity
Weight	130gr
Max. Dimensions	Ø52mm x 41.8mm
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +100°C
Sealing	IP 67 front element only
Configurations	
680055-001	Hard Carbon

SupIR 35mm f/1.2, Athermalized Manual Focus 680111-003



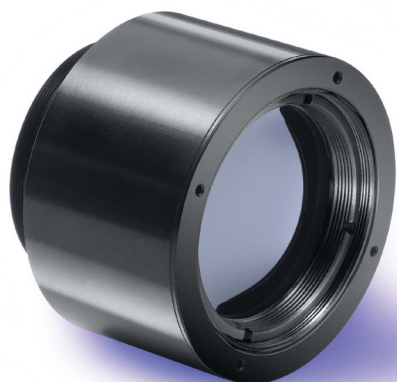
TYPICAL ICD



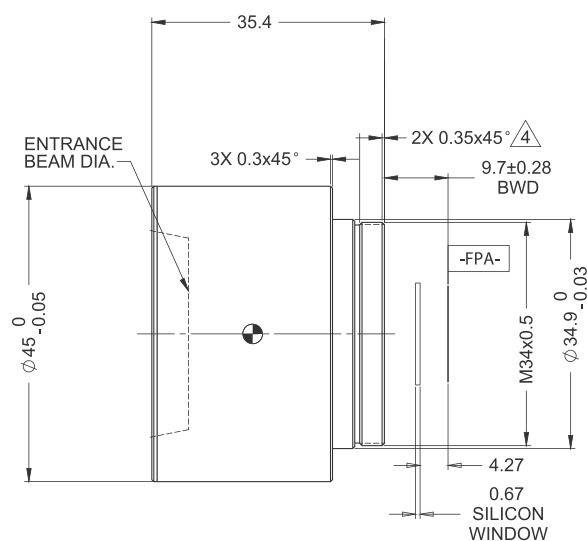
HFOV _[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	6.5	13.0	15.5		
17μ	4.4	8.9	10.6	17.6	
12μ	3.1	6.3	7.5	12.5	19.7

Property	Value
Optical	
Focal Length	35mm
F/#	1.2
Average Transmission (8-12μm)	85%
Back Focal Length	22.62mm in air
Mechanical	
Focus Mechanism	Manually
Focus Range	1m to infinity
Depth of Field	50m to infinity
Weight	234gr
Max. Dimensions	Ø74mm x 40.2mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680111-003	High Durability
680111-004	Hard Carbon

SupIR 35mm f/1.2, Fixed Athermalized 680111



TYPICAL ICD

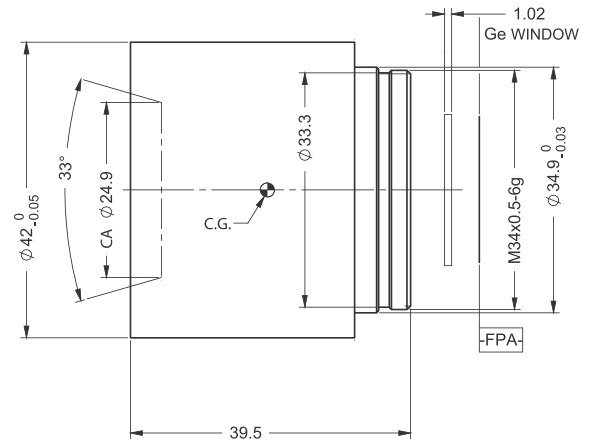


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	6.5	13.0	15.5		
17μ	4.4	8.9	10.6	17.6	
12μ	3.1	6.3	7.5	12.5	19.7

Property	Value
Optical	
Focal Length	35mm
F/#	1.2
Average Transmission (8-12μm)	89% (HC)
Back Focal Length	22.62mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	1m to infinity
Depth of Field	50m to infinity
Weight	108gr
Max. Dimensions	Ø53.5mm x 45.2mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680111-005	High Durability M34x0.5
680111-006	Hard Carbon M34x0.5

SuplR 35mm f/1.4, Fixed Athermalized 65184

TYPICAL ICD

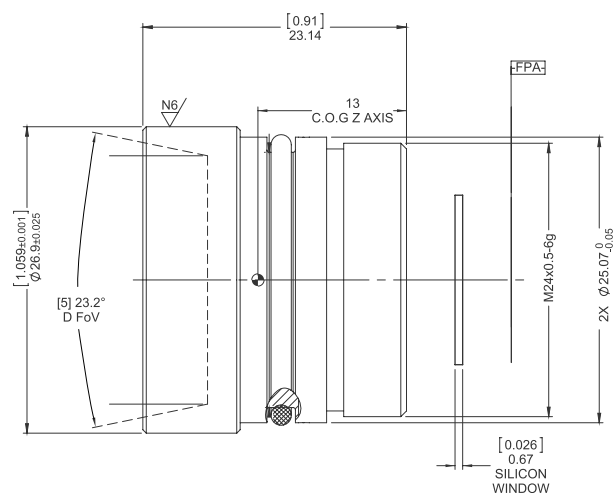


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	6.6	13.1	15.7	25.7	
17 μ	4.5	8.9	10.7	17.7	27.8
12 μ	3.2	6.3	7.6	12.6	19.9

Property	Value
Optical	
Focal Length	35mm
F/#	1.4
Average Transmission (8-12 μ m)	87% (HC)
Back Focal Length	12.8mm in air
Mechanical	
Focus Mechanism	Fixed Focus
Focus Range	0.4m
Depth of Field	21m
Weight	75gr
Max. Dimensions	Ø43mm x 42mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
65184-06	Hard Carbon, BWD 6.84mm
65184-07	High Durability, M34x0.5, BWD 9.7mm
65184-08	Hard Carbon, M34x0.5, BWD 9.7mm
65184-10	High Durability, M34x0.5, BWD 6.64mm
65184-11	High Durability, M34x0.5, BWD 6.82mm
65184-13	High Durability, M34x0.5, BWD 16.97mm

SupIR 35mm f/1.5, Fixed Athermalized 680262

TYPICAL ICD

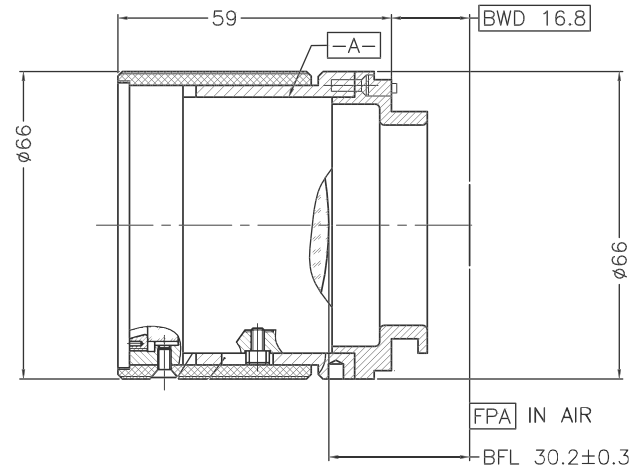


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	6.9	13.8	16.4		
17 μ	4.7	9.4	11.2	18.5	27.8
12 μ	3.3	6.6	7.9	13.2	20.7

Property	Value
Optical	
Focal Length	35mm
F/#	1.5
Average Transmission (8-12 μ m)	92% (HD)
Back Focal Length	16.6mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	5m to infinity
Focus Range	0.6m to infinity
Weight	20gr
Max. Dimensions	Ø26.9mm X 23.14mm
Environmental	
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680262-001	High Durability, M24x0.5
680262-002	Hard Carbon, M24x0.5

SupIR R-35mm f/1.0, Radiometric, Manual Focus 65119

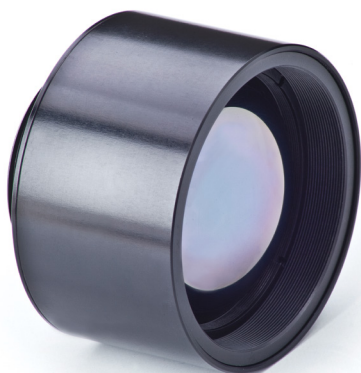
TYPICAL ICD



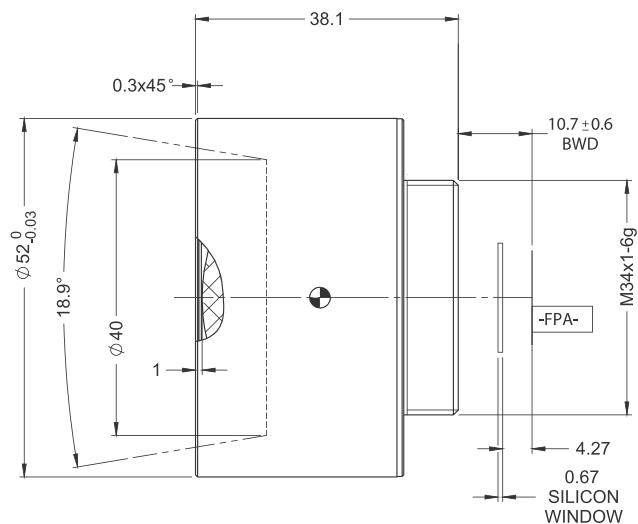
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	6.6	13.1	15.7		
17μ	4.5	8.9	10.7	17.8	
12μ	3.1	6.3	7.5	12.6	

Property	Value
Optical	
Focal Length	35mm
F/#	1.0
Average Transmission (8-12μm)	87% (HC)
Back Focal Length	30.2mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	1.5m to infinity
Depth of Field	100m to infinity
Weight	320gr
Max. Dimensions	Ø86mm x 75mm
Environmental	
Operating Temperature	-20°C to +60°C
Storage Temperature	-40°C to +70°C
Sealing	No sealed
Configurations	
65119-04	High Efficiency 3-14μ coating, BWD 16.8mm
65119-05	High Durability, twist lock, BWD 16.8mm
65119-06	High Efficiency 3-14μ coating, twist lock, BWD 16.8mm

SuplR 40mm f/1.0, Fixed Athermalized 680277



TYPICAL ICD

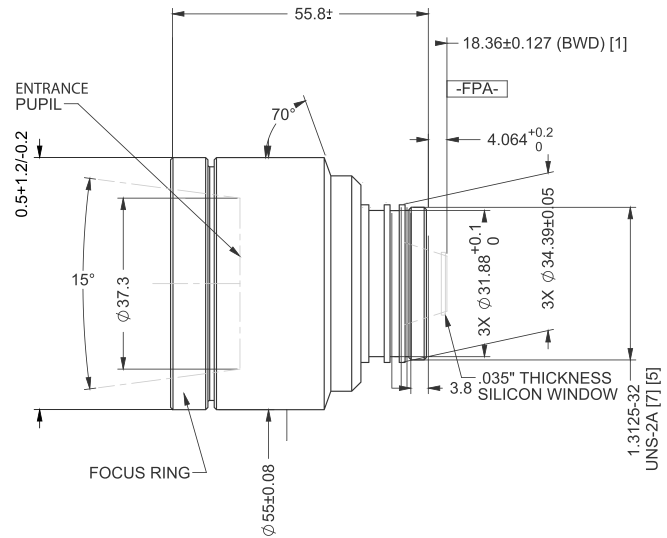


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	5.7	11.3	13.5		
17μ	3.9	7.8	9.3	15.3	
12μ	2.7	5.5	6.6	10.9	17.2

Property	Value
Optical	
Focal Length	40mm
F/#	1.0
Average Transmission (8-12μm)	85% (HC)
Back Focal Length	17.8mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	100m to infinity
Focus Range	3m to infinity
Weight	121gr
Max. Dimensions	Ø 52mm x 38.1mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680277-001	High Durability
680277-002	Hard Carbon

SuplR 45mm f/1.2, Fixed Athermalized 65217

TYPICAL ICD

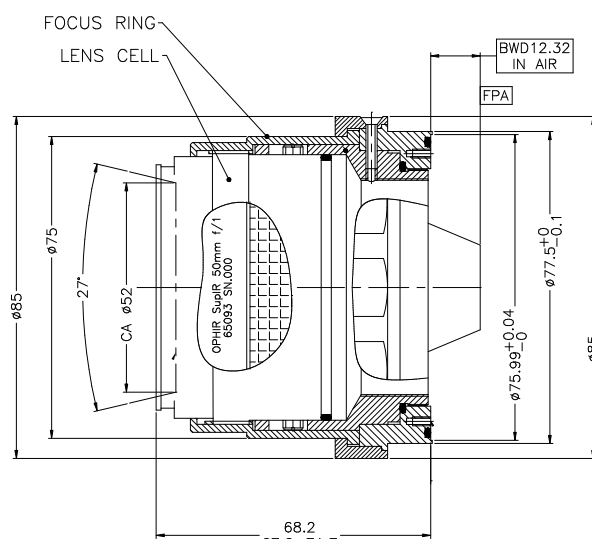


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	5.1	10.0	12.0		
17μ	3.5	6.9	8.2		
12μ	2.5	4.9	5.9	9.7	

Property	Value
Optical	
Focal Length	45mm
F/#	1.2
Average Transmission (8-12μm)	94% (HD)
Back Focal Length	13.03mm in air
Mechanical	
Focus Mechanism	Manually
Focus Range	2m to infinity
Depth of Field	22m to infinity
Weight	170gr
Max. Dimensions	Ø55mm x 55.8mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +110°C
Sealing	IP 67 front element only
Configurations	
65217-02	High Durability

SupIR 50mm f/1.0, Manual Focus 65093

TYPICAL ICD

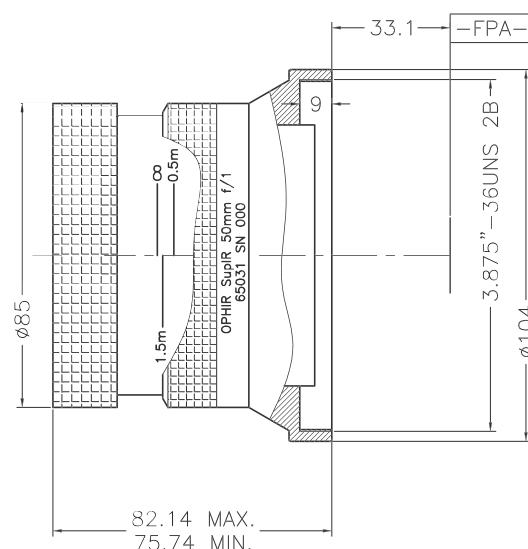


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	4.6	9.2	11.0		
17 μ	3.1	6.2	7.5	15.0	
12 μ	2.2	4.4	5.3	8.8	14.0

Property	Value
Optical	
Focal Length	50mm
F/#	1.0
Average Transmission (8-12 μ m)	95% (HD)
Back Focal Length	34.05mm in air
Mechanical	
Focus Mechanism	Manually
Focus Range	5m to infinity
Depth of Field	200m to infinity
Weight	380gr
Max. Dimensions	Ø78mm x 74.5mm
Environmental	
Operating Temperature	-20°C to +50°C
Storage Temperature	-20°C to +70°C
Sealing	IP 67 front element only
Configurations	
65093-02	High Durability, 6X#2-56 UNC, BWD 12.32
65093-03	High Durability, M 46X1, BWD 15.125
65093-05	High Durability, 2 $\frac{5}{16}$ "-36NC-2A, BWD 19.9, short

SupIR R-50mm f/1.0, Radiometric, Manual Focus 65031

TYPICAL ICD



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	4.2	5	10.3	17.4	
17 μ	2.9	5.8	7.0	11.7	

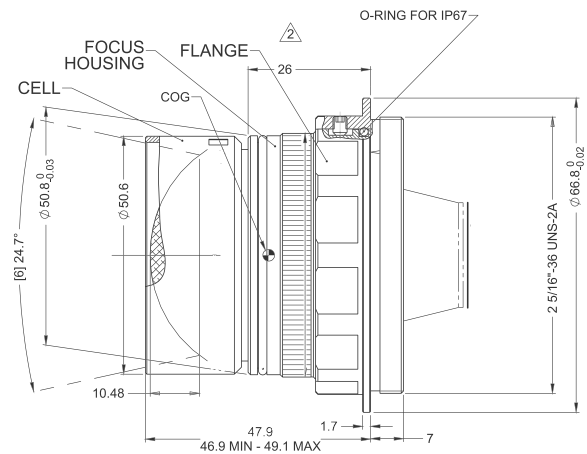
Property	Value
Optical	
Focal Length	50mm
F/#	1.0
Average Transmission (8-12 μ m)	95% (HD)
Back Focal Length	40.85mm in air
Mechanical	
Focus Mechanism	Manually
Focus Range	1.5m to infinity
Depth of Field	100m to infinity
Weight	700gr
Max. Dimensions	Length 82mm, Ø104mm
Environmental	
Operating Temperature	-20°C to +50°C
Storage Temperature	-40°C to +50°C
Sealing	IP 67 front element only
Configurations	
65031	High Durability

SupIR 50mm f/1.2, Fixed Athermalized 680193

TYPICAL ICD



HD
FORMAT

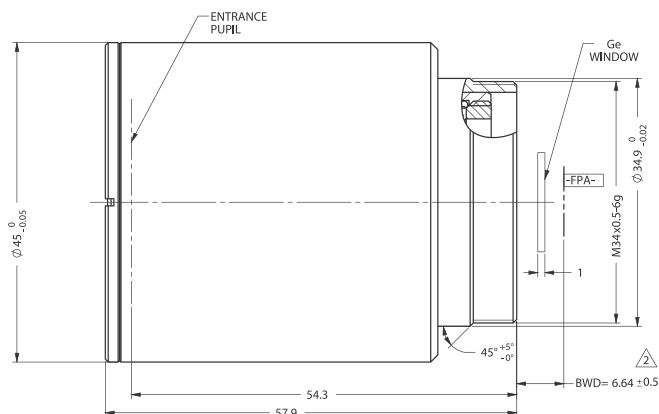


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	4.6	9.2	11.0	18.3	
17 μ	3.1	6.2	7.48	12.4	19.8

Property	Value
Optical	
Focal Length	75mm
F/#	1.2
Average Transmission (8-12 μ m)	85%
Back Focal Length	29.75mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	3m to infinity
Depth of Field	150m to infinity
Weight	216gr
Max. Dimensions	Ø66.8mm x 49.1mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-40°C to +80°C
Sealing	IP 67 front element only
Configurations	
680193-001	High Durability

SuplR 50mm f/1.7, Fixed Athermalized 65215

TYPICAL ICD



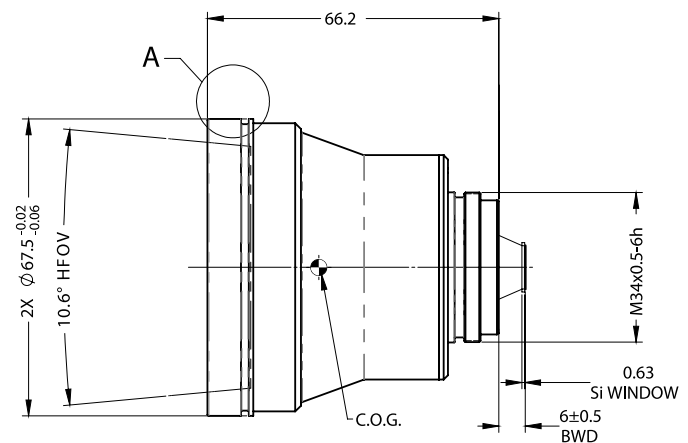
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	4.6	9.2	11.1	18.3	
17μ	3.1	6.3	7.5	12.5	
12μ	2.2	4.4	5.3	8.9	14.1

Property	Value
Optical	
Focal Length	50mm
F/#	1.7
Average Transmission (8-12μm)	89% (HC)
Back Focal Length	16.53mm in air
Mechanical	
Focus Mechanism	Manually
Focus Range	2m to infinity
Depth of Field	70m to infinity
Weight	121gr
Max. Dimensions	Ø45mm x 57.5mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
65215-01	High Durability, BWD 17.34mm
65215-02	Hard Carbon, BWD 17.34mm
65215-03	High Durability, BWD 17.6mm
65215-04	Hard Carbon, BWD 17.6mm
65215-05	High Durability, M34x0.5, BWD 6.64mm

SuplR 55mm f/1.0, Fixed Athermalized 680372

NEW

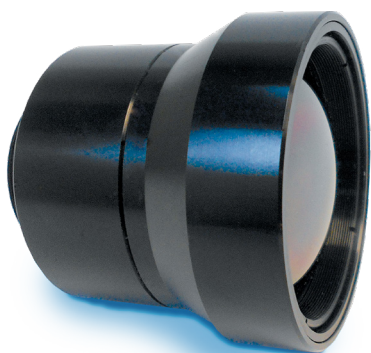

TYPICAL ICD



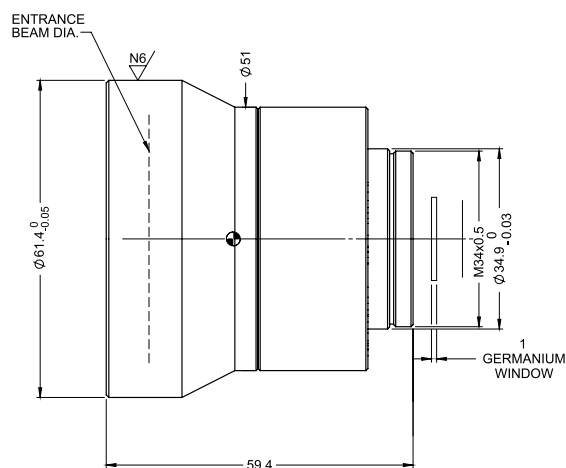
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	4.2	8.3	10.0		
17μ	2.8	5.7	6.8		
12μ	2.0	4.0	4.8	8.0	
12μ	1.7	3.3	4.0	6.4	

Property	Value
Optical	
Focal Length	55mm
F/#	1.0
Average Transmission in (8-12μm)	85% (HC)
Back Focal Length	12.03mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	150m to infinity
Focus Range	1.5m to infinity
Weight	177gr
Max. Dimensions	Ø67.5mm x 66.2mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680372-001	High Durability
680372-002	Hard Carbon

SuplR 60mm f/1.25, Fixed Athermalized 680260

NEW


TYPICAL ICD

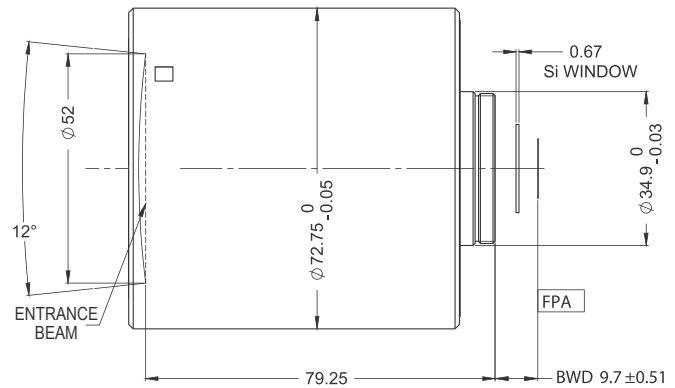
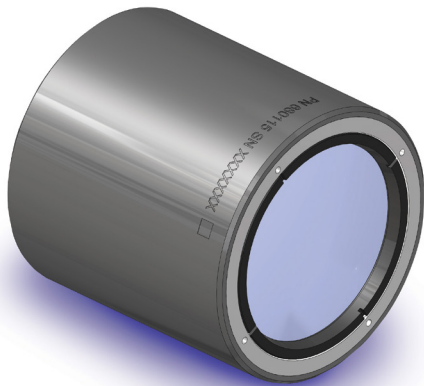


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	3.8	7.6	9.0		
17 μ	2.6	5.2	6.2	10.2	
12 μ	1.8	3.7	4.4	7.3	11.5

Property	Value
Optical	
Focal Length	60mm
F/#	1.25
Average Transmission in (8-12 μ m)	84% (HC)
Back Focal Length	13.66mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	160m to infinity
Focus Range	2m to infinity
Weight	212gr
Max. Dimensions	Ø61.4mm x 59.4mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680260-001	High Durability
680260-002	Hard Carbon

SupIR 65mm f/1.2, Fixed Athermalized 680115

TYPICAL ICD



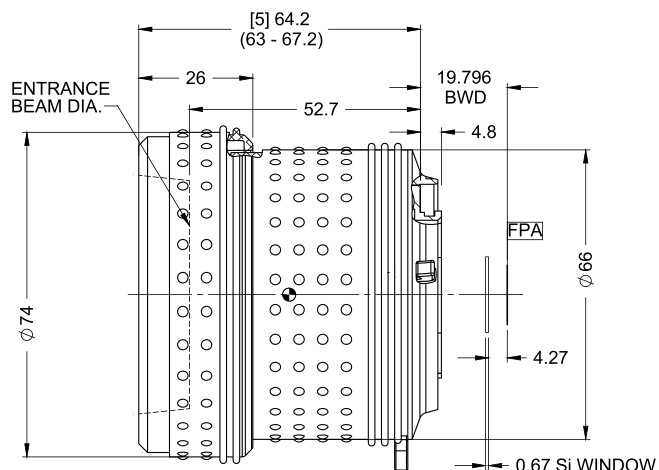
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.5	7.0	8.4		
17μ	2.4	4.8	5.7	9.6	
12μ	1.7	3.4	4.1	6.8	10.8

Property	Value
Optical	
Focal Length	65mm
F/#	1.2
Average Transmission (8-12μm)	89% (HC)
Back Focal Length	42.07mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	2.5m to infinity
Depth of Field	175m to infinity
Weight	490gr
Max. Dimensions	Ø72.75mm x 79.25mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680115-001	High Durability, M34x0.5, BWD 9.7mm
680115 -002	Hard Carbon, M34x0.5, BWD 9.7mm

SupIR 65mm f/1.25, Manual Focus 680061



TYPICAL ICD



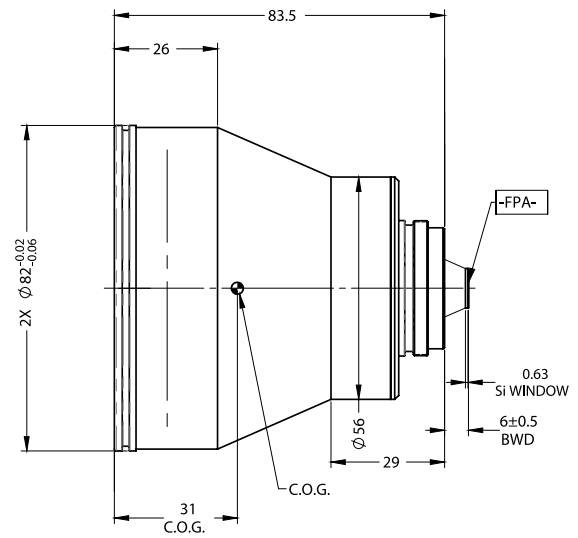
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.5	7.0	8.4		
17μ	2.4	4.8	5.7	9.6	
12μ	1.7	3.4	4.1	6.8	10.8

Property	Value
Optical	
Focal Length	65mm
F/#	1.25
Average Transmission (8-12μm)	89% (HC)
Back Focal Length	42.07mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	2.5m to infinity
Depth of Field	175m to infinity
Weight	490gr
Max. Dimensions	Ø72.75mm x 79.25mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 64 front element only
Configurations	
680061-003	Hard Carbon

SuplR 73.1mm f/1.05, Fixed Athermalized 680311

NEW


TYPICAL ICD

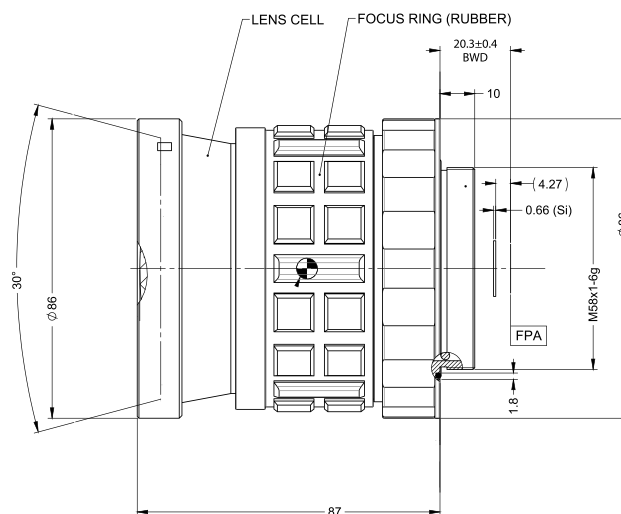


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.1	6.2	7.5		
17μ	2.1	4.3	5.0		
12μ	1.5	3.0	3.61	6.0	11.9
10μ		2.5		5.0	9.9

Property	Value
Optical	
Focal Length	73.1mm
F/#	1.05
Average Transmission (8-12μm)	89%
Back Focal Length	24.68mm in air
Mechanical	
Focus Mechanism	Fixed
Depth of Field	300m to infinity
Focus Range	5m to infinity
Weight	265gr
Max. Dimensions	Ø82mm x 83.5mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680311-001	Hard Durability
680311-002	Hard Carbon

SuplR 75mm f/1.0, Manual Focus 65094

TYPICAL ICD

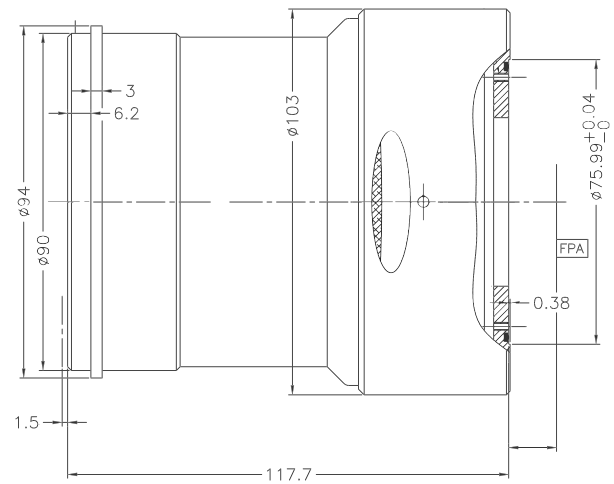


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	3.1	6.1	7.3	12.1	
17 μ	2.1	4.2	5.0	8.3	13.2
12 μ	1.5	2.9	3.5	5.9	9.3

Property	Value
Optical	
Focal Length	75mm
F/#	1.0
Average Transmission (8-12 μ m)	87% (HC)
Back Focal Length	35mm in air
Mechanical	
Focus Mechanism	Manually adjustable
Focus Range	6m to infinity
Depth of Field	950m to infinity
Weight	530gr
Max. Dimensions	Ø86mm x 100.8mm
Environmental	
Operating Temperature	-20°C to +50°C
Storage Temperature	-20°C to +70°C
Sealing	IP 64 front element only
Configurations	
65094-03	High Durability, 2 $\frac{5}{16}$ "-36NC, BWD 20.3
65094-04	Hard Carbon, 2 $\frac{5}{16}$ "-36NC, BWD 20.3
65094-07	High Durability, BWD 35.6

SuplR 75mm f/1.0, Fixed Athermalized 65110

TYPICAL ICD

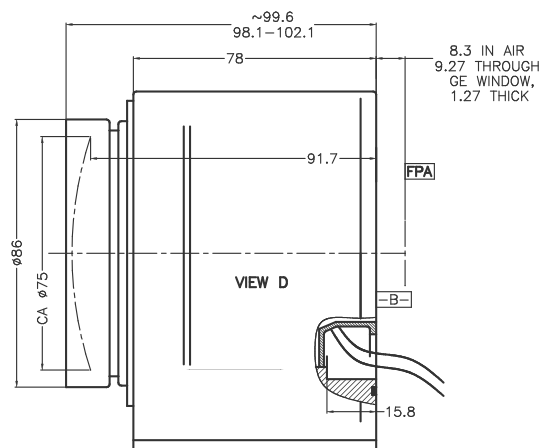


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.1	6.1	7.3		
17μ	2.1	4.2	5.0	8.3	
12μ	1.5	2.9	3.5	5.9	9.4

Property	Value
Optical	
Focal Length	75mm
F/#	1.0
Average Transmission (8-12μm)	95% (HD)
Back Focal Length	46.2mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	15m to infinity
Depth of Field	700m to infinity
Weight	910gr
Max. Dimensions	Ø103mm x 118mm
Environmental	
Operating Temperature	-20°C to +60°C
Storage Temperature	-40°C to +70°C
Sealing	IP 67 front element only
Configurations	
65110-02	With front sealing ring

SupIR 75mm f/1.0, Motorized Focus 65138

TYPICAL ICD

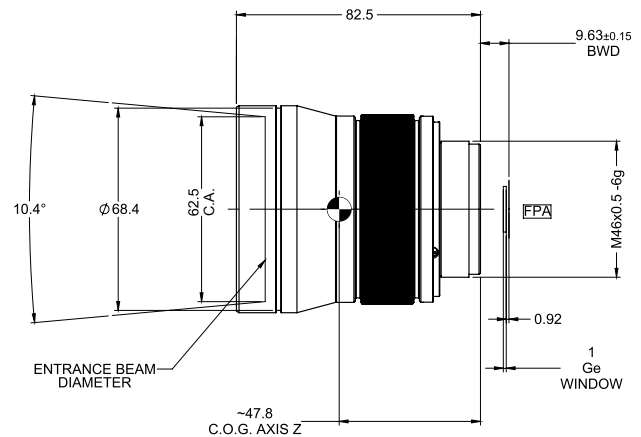


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.1	6.1	7.3	12.1	
17μ	2.1	4.2	5.0	8.3	13.2
12μ	1.5	2.9	3.5	5.9	9.3

Property	Value
Optical	
Focal Length	75mm
F/#	1.0
Average Transmission (8-12μm)	87% (HC)
Back Focal Length	35mm in air
Mechanical	
Focus Mechanism	Motorized
Focus Range	6m to infinity
Depth of Field	950m to infinity
Weight	1Kg
Max. Dimensions	Length 102.1mm, Width 95.25mm, Height 116mm
Electrical	
Drive Voltage	12VDC
Current Consumption	0.3A average, 0.5A peak
Environmental	
Operating Temperature	-20°C to +50°C
Storage Temperature	-20°C to +70°C
Sealing	IP 67 front element only
Configurations	
65138-01	High Durability
65138-02	Hard Carbon
65138-03	Hard Carbon Low Reflection
65138-04	Encoder, High Durability
65138-05	Encoder, Hard Carbon

SuplR 75mm f/1.2, Athermalized Manual Focus 680318

NEW

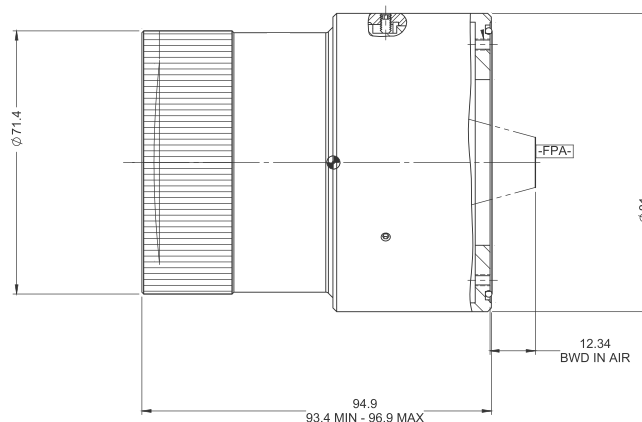


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.0	6.1	7.3		
17μ	2.1	4.1	4.9	8.2	
12μ	1.5	2.9	3.5	5.8	9.3

Property	Value
Optical	
Focal Length	75mm
F/#	1.2
Average Transmission (8-12μm)	86%
Back Focal Length	14.33mm in air
Mechanical	
Focus Mechanism	Manual
Depth of Field	400m to infinity
Focus Range	5m to infinity
Weight	265gr
Max. Dimensions	Ø 86.4mm x 82.5mm
Environmental	
Operating Temperature	-30°C to +70°C
Storage Temperature	-30°C to +70°C
Sealing	IP 67 front element only
Configurations	
680318-001	Hard Carbon

SupIR 75mm f/1.4, Fixed Athermalized 680198

TYPICAL ICD

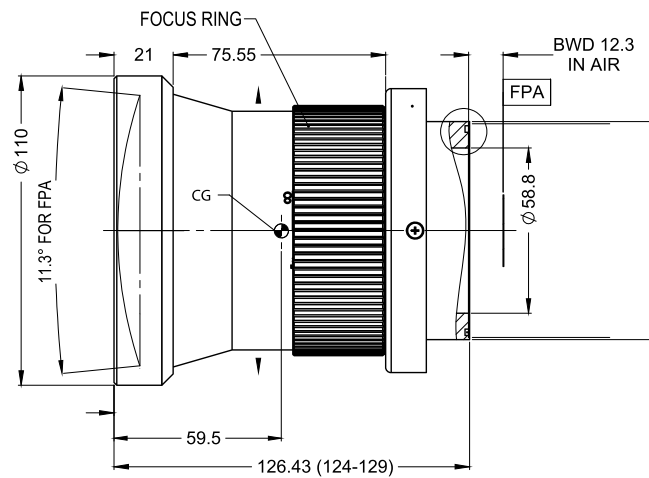


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	3.1	6.1	7.3		
17 μ	2.1	4.2	5.0	8.3	
12 μ	1.5	2.9	3.5	5.9	9.4

Property	Value
Optical	
Focal Length	75mm
F/#	1.4
Average Transmission (8-12 μ m)	83%
Back Focal Length	48.51mm in air
Mechanical	
Focus Mechanism	Fixed
Focus Range	1.5m to infinity
Depth of Field	200m to infinity
Weight	587gr
Max. Dimensions	Ø81mm x 96.9mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-40°C to +80°C
Sealing	IP 67 front element only
Configurations	
680198-001	BWD 12.34mm High Durability Coating
680198-002	BWD 12.34mm Hard Carbon Coating
680198-003	M34x0.5 BWD 9.22mm High Durability Coating
680198-004	M34x0.5 BWD 9.22mm Hard Carbon Coating

SuplR 100mm f/1.0, Manual Focus 65040

TYPICAL ICD

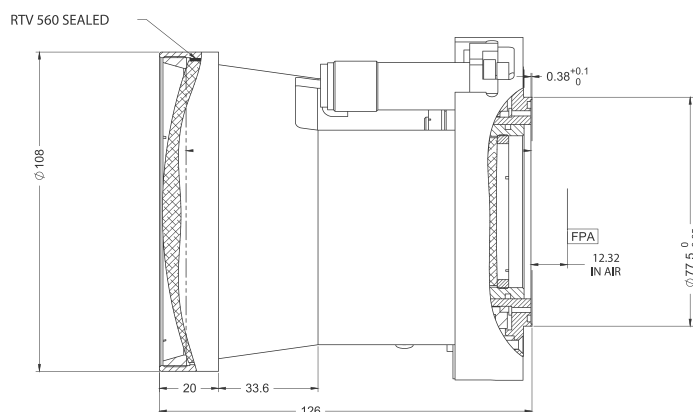


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	2.3	4.6	5.5	9.1	
17 μ	1.6	3.1	3.7	6.2	9.9
12 μ	1.1	2.2	2.6	4.4	7.7

Property	Value
Optical	
Focal Length	100mm
F/#	1.0
Average Transmission (8-12 μ m)	87% (HC)
Back Focal Length	23.97mm in air
Mechanical	
Focus Mechanism	Manual
Focus Range	15m to infinity
Depth of Field	800m to infinity
Weight	1.2Kg
Max. Dimensions	Ø112mm x 128mm
Environmental	
Operating Temperature	-20°C to +50°C
Storage Temperature	-40°C to +60°C
Sealing	IP 67 front element only
Configurations	
65040-02	High Durability, 6X#2-UNC, BWD 12.3mm
65040-03	Hard Carbon, 6X#2-UNC, BWD 12.3mm
65040-04	High Durability, 2.625"-36UN-2A, BWD 13.3mm

SuplR 100mm f/1.0, Motorized Focus 65095

TYPICAL ICD

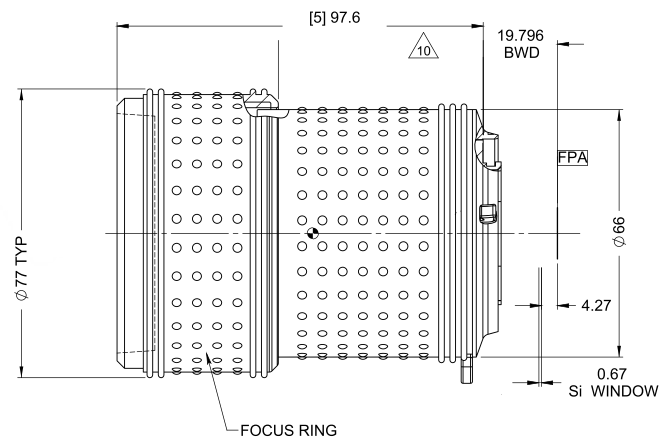


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	2.3	4.6	5.5	9.1	
17μ	1.6	3.1	3.7	6.2	9.9
12μ	1.1	2.2	2.6	4.4	7.0

Property	Value
Optical	
Focal Length	100mm
F/#	1.0
Average Transmission (8-12μm)	87% (HC)
Back Focal Length	23.96mm in air
Mechanical	
Focus Mechanism	Motorized
Focus Range	15m to infinity
Depth of Field	800m to infinity
Weight	1.1Kg
Max. Dimensions	Ø118mm x 123mm
Electrical	
Drive Voltage	6VDC
Current Consumption	0.3A average, 0.5A peak
Environmental	
Operating Temperature	-30°C to +65°C
Storage Temperature	-40°C to +70°C
Sealing	IP 67 front element only
Configurations	
65095-01	Hard Carbon
65095-04	Hard Carbon with encoder

SuplR 100mm f/1.6, Manual Focus 680121

TYPICAL ICD

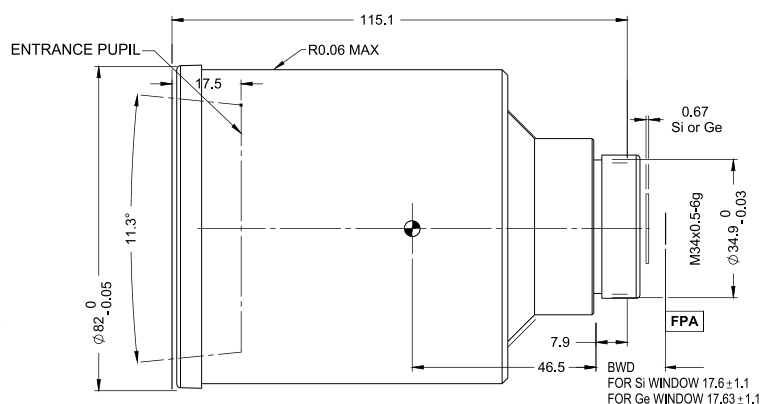
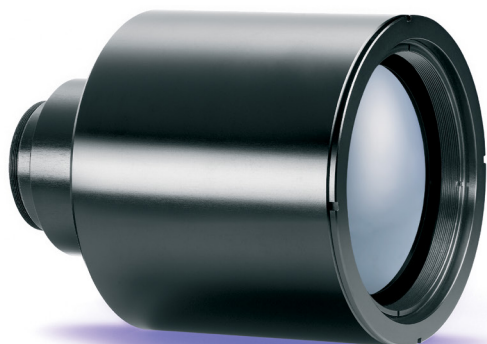


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25 μ	2.3	4.6	5.5	9.1	
17 μ	1.6	3.1	3.7	6.2	9.8
12 μ	1.1	2.2	2.6	4.4	7.0

Property	Value
Optical	
Focal Length	100mm
F/#	1.6
Average Transmission (8-12 μ m)	88%
Back Focal Length	21.33mm in air
Mechanical	
Focus Mechanism	Manually adjustable
Focus Range	3m to infinity
Depth of Field	400m to infinity
Weight	370gr
Max. Dimensions	Ø77mm x 102.5mm
Environmental	
Operating Temperature	-40°C to +80°C
Storage Temperature	-55°C to +85°C
Sealing	IP 67 front element only
Configurations	
680121-002	Hard Carbon

SuplR 100mm f/1.6, Fixed Athermalized 680026

TYPICAL ICD

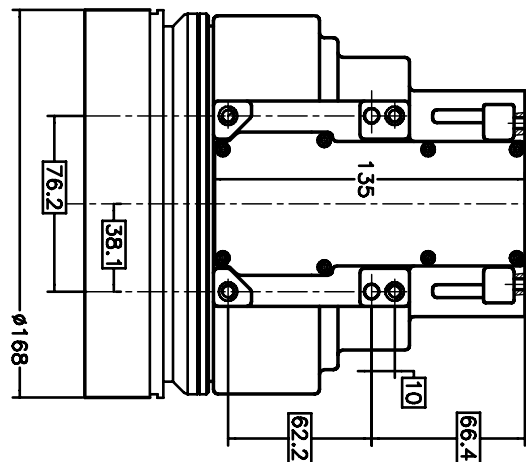


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	2.3	4.6	5.5	9.1	
17μ	1.6	3.1	3.7	6.2	9.8
12μ	1.1	2.2	2.6	4.4	7.0

Property	Value
Optical	
Focal Length	100mm
F/#	1.6
Average Transmission (8-12μm)	88% (HC)
Back Focal Length	21.33mm in air
Mechanical	
Focus Mechanism	Fixed Focus
Focus Range	3m to infinity
Depth of Field	400m to infinity
Weight	461gr
Max. Dimensions	Ø82mm x 112.1mm
Environmental	
Operating Temperature	-10°C to +80°C
Storage Temperature	-50°C to +85°C
Sealing	IP 67 front element only
Configurations	
680026-006	Hard Carbon

SupIR 150mm f/1.0, Motorized Focus 65043

TYPICAL ICD

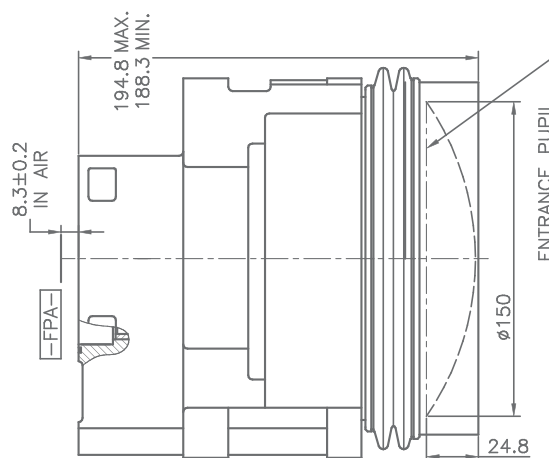


HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	1.5	3.1	3.7	6.1	
17μ	1.0	2.1	2.5	4.2	6.7
12μ	0.7	1.5	1.8	2.9	4.7

Property	Value
Optical	
Focal Length	150mm
F/#	1.0
Average Transmission (8-12μm)	86% (HC)
Spurious Reflection	No spurious reflections
Back Focal Length	41.76mm in air
Mechanical	
Focus Mechanism	Motorized
Focus Range	40m to infinity
Depth of Field	1500m to infinity
Weight	4.1Kg
Max. Dimensions	Length 194.6mm, Width 181mm, Height 181mm
Electrical	
Drive Voltage	12VDC
Current Consumption	0.4A average, 0.7A peak
Environmental	
Operating Temperature	-40°C to +50°C
Storage Temperature	-50°C to +70°C
Sealing	65043-01 IP67 between element only 65043-04 IP67 front element only
Configurations	
65043-01	Hard Carbon sealing IP67 between element only
65043-04	Hard Carbon sealing IP67 front element only

SupIR 210mm f/1.4, Motorized Focus 65070

TYPICAL ICD



HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	1.1	2.2	2.6	4.4	
17μ	0.7	1.5	1.8	3.0	4.7
12μ	0.5	1.0	1.3	2.1	3.3

Property	Value
Optical	
Focal Length	210mm
F/#	1.4
Average Transmission (8-12μm)	86% (HC)
Back Focal Length	41.76mm in air
Mechanical	
Focus Mechanism	Motorized
Focus Range	8.5m to infinity
Depth of Field	550m to infinity
Weight	4.1Kg
Max. Dimensions	Length 194.6mm, Width 181mm, Height 181mm
Electrical	
Drive Voltage	12VDC
Current Consumption	0.4A average, 0.7A peak
Environmental	
Operating Temperature	-40°C to +50°C
Storage Temperature	-50°C to +70°C
Sealing	IP 67 front element only
Configurations	
65070-02	Hard Carbon

TYPICAL ICD

SupIR 45/135mm f/1.1, f/1.6, Motorized Focus 680020*



WFOV(45mm)

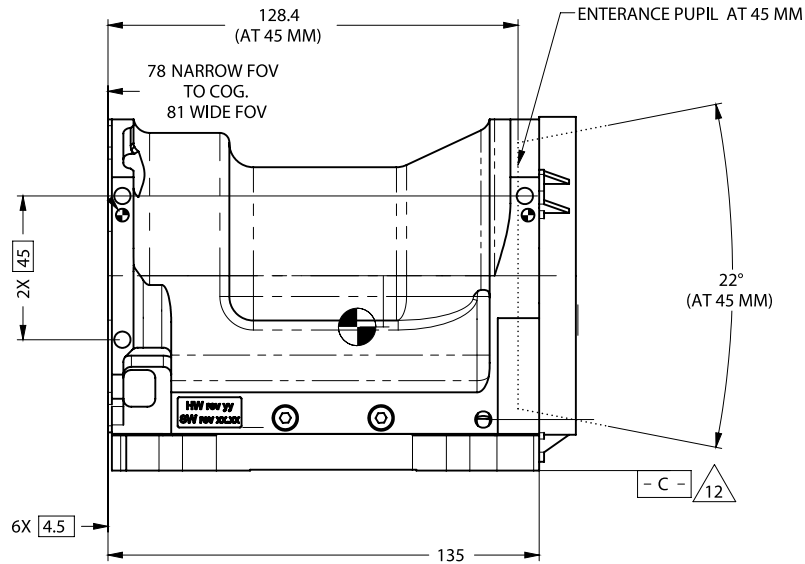
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	5.1	10.4	12.6		
17μ	3.5	7.0	8.4	14.3	
12μ	2.4	4.9	5.9	9.9	16.3

NFOV(135mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	1.37	3.4	4.1		
17μ	1.2	2.3	2.8	4.6	
12μ	0.8	1.6	2.0	3.3	5.2

Property	Value	
Optical	WFOV	NFOV
Focal Length	45mm	135mm
F/#	1.1	1.6
Average Transmission (8-12μm)	85% (HC)	
Back Focal Length	48.35mm in air	
Mechanical		
Focus Mechanism	Motorized adjustable	
Focus Range	10m to infinity	
Focus Time (full travel)	<1 sec.	
Weight	1.4Kg	
Max. Dimensions	Length 142mm, Width 98mm, Height 110mm	
FOV Switch Mechanism	Motorized	
FOV Switch Time	<2 sec	

TYPICAL ICD



Property	Value
Electrical	
Focus & FOV Motor	0.7A average, 1.0A peak at T=-40°C 0.6A average, 1.0A peak at T=20°C
Drive Voltage	12V
Current Consumption	0.7A average, 1.0A peak
Environmental	
Operating Temperature	-40°C to +65°C
Storage Temperature	-40°C to +71°C
Sealing	IP 67 front element only
Configurations	
680020-004	w/o Mounting plate, Hard Carbon
680020-006	Mounting plate, Hard Carbon
680020-007	w/o Mounting plate, HE

* Requires export license

SupIR 60/180mm f/1.4, Motorized Focus 65036



WFOV(60mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.8	7.7	9.3	15.8	
17μ	2.6	5.2	6.3	10.5	17.3
12μ	1.8	3.7	4.4	7.4	11.9

NFOV(100mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	1.3	2.5	3.1	5.1	
17μ	0.9	1.7	2.1	3.5	5.6
12μ	0.6	1.2	1.5	2.4	3.9

Property	Value	
Optical	WFOV	NFOV
Focal Length	60mm	180mm
F/#	1.4	
Average Transmission (8-12μm)	81% (HC)	
Back Focal Length	70.1mm in air	
Mechanical		
Focus Mechanism	Motorized adjustable	
Focus Range	10m to infinity	
Focus Time (full travel)	8 sec.	
Weight	6.2Kg	
Max. Dimensions	Length 215.3mm, Width 200mm, Height 222mm	
FOV Switch Mechanism	Motorized	
FOV Switch Time	<2 sec	

SupIR 15-60mm f/1.4, Motorized Continuous Focus 680164



WFOV(15mm)

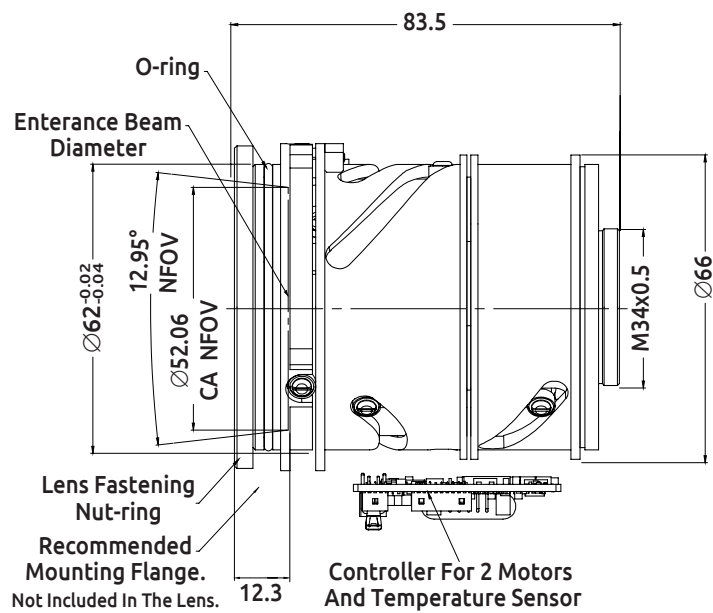
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	15.4	31.5	38.4		
17μ	10.4	21.1		44.2	
12μ		14.8		30.2	

NFOV(60mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	3.8	7.6	9.2		
17μ	2.6	5.2		10.4	
12μ		3.7		7.3	

Property	Value	
Optical	WFOV	NFOV
Focal Length	15mm	60mm
F/#	1.4	
Average Transmission (8-12μm)	≥ 81% for LRHC coating; ≥ 85% for HD coating)	
Back Focal Length	≥ 25mm in air	
Horizontal FOV	44.2°	10.4°
Distortion (in diagonal)	<19%	<2%
Minimum Focus Range	1m	2m
On-Axis MTF at 29.4cy/mm (at room temperature = +20°C)	≥ 33% at all zoom positions	
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 4 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 4 sec.	
Weight	500gr	
Max. Dimensions	Length: 80mm; Height: 89mm; OD: Ø62mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	0.2A average, 0.5A peak
Communication Protocol	RS422
Environmental	
Operation Temperature	-32°C to +80°C
Storage Temperature	-45°C to +85°C
Sealing	IP 67 front element only
Configurations	
680164-001	High Durability
680164-002	High Carbon

LightIR 15-75mm f/1.2, Motorized Continuous Focus 680386

NEW



TYPICAL ICD

WFOV(EFL 15mm)

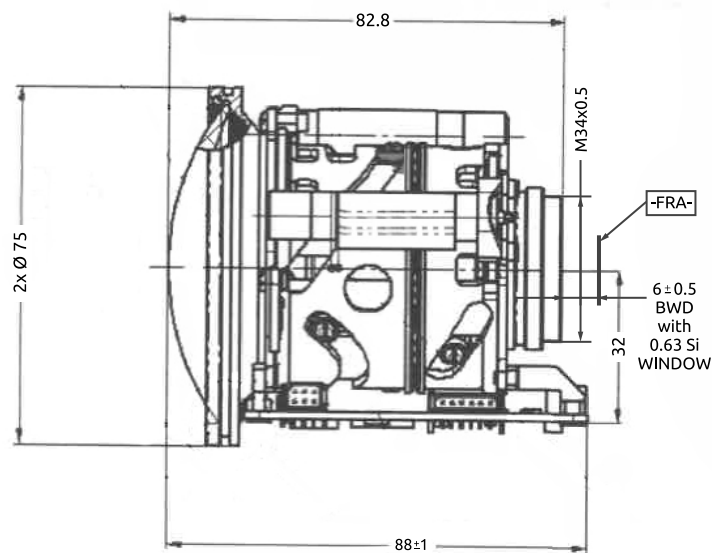
HFOV[deg]	480x384	640x512
25μ	37.9	
17μ	25.3	43.4
12μ	17.7	29.9

NFOV(EFL 275mm)

HFOV[deg]	480x384	640x512
25μ	7.3	
17μ	5.0	8.2
12μ	3.5	5.8

Property	Value	
Optical	WFOV	NFOV
Focal Length	15mm	75mm
F/#	1.2	
Average Transmission (8-12μm)	85.5% (HD); 79.4% (HC)	
Back Focal Length	20.76mm in air	24.28mm in air
Distortion	<6%	<0.5%
Minimum Focus Range	7m	18m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 1 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 5.5 sec	
Weight	320gr (max)	
Max. Dimensions	Ø76mm x 88mm	

TYPICAL ICD



TYPICAL ICD

Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	<0.15A average, 0.3A peak
Communication Protocol	RS485, RS422, RS232
Environmental	
Operating Temperature	-32°C to + 70°C
Storage Temperature	-40°C to + 80 °C
Sealing	IP 67 front element only
Configurations	
680386-001	High Durability
680386-002	Hard Carbon

SupIR 15-100mm f/1.4, Motorized Continuous Focus 680090



WFOV(15mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	15.3	30.8	37.1	62.7	
17μ	10.4	20.9	25.1	42.2	68.4
12μ	7.8	15.6	18.8	31.5	50.9

NFOV(100mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	2.3	4.6	5.5	9.1	
17μ	1.6	3.1	3.7	6.2	9.9
12μ	1.1	2.2	2.6	4.4	7.0

Property	Value	
Optical	WFOV	NFOV
Focal Length	15mm	100mm
F/#	1.4	
Average Transmission (8-12μm)	≥75% for HC coating; ≥81% for HD coating	
Back Focal Length	≥16.07mm in air	
Distortion (in diagonal)	<10%	<5%
Minimum Focus Range	1m	10m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time	≤ 8 sec	
Zoom Mechanism	Motorized	
Zoom Time	≤ 5 sec at T> -10°C ≤ 8 sec at T≤ -10°C	
Weight	1.4kg	
Max. Dimensions	Ø105mm x 133mm	

SupIR 30-100mm f/1.6, Manual Focus 680151



WFOV(30mm)

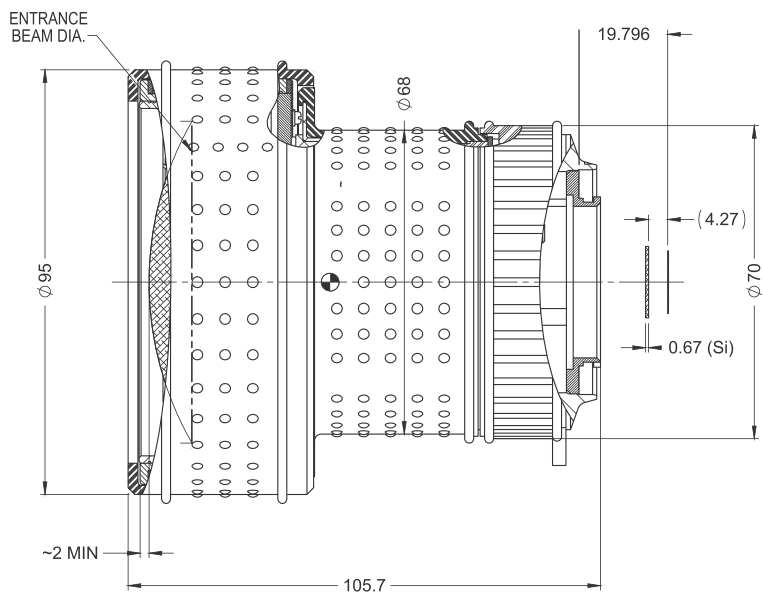
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	7.6	15.2	18.3	31.0	
17μ	5.1	10.3	12.4	20.8	33.9
12μ	3.6	7.3	8.7	14.6	23.5

NFOV(100mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	2.3	4.6	5.5	9.1	
17μ	1.6	3.1	3.7	6.2	9.8
12μ	1.1	2.2	2.6	1.1	7.0

Property	Value	
Optical	WFOV	NFOV
Focal Length	30mm	100mm
F/#	1.6	
Average Transmission (8-12μm)	≥80% for HC coating; ≥86% for HD coating	
Back Focal Length	≥31.56mm in air	
Distortion (in diagonal)	<8%	<2%
Minimum Focus Range	2m	2m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Manual	
Zoom Mechanism	Manual	
Weight	650gr	
Max. Dimensions	Ø94mm x 105mm	

TYPICAL ICD



Property	Value
Environmental	
Operation Temperature	-40°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680151-001	High Durability
680151-002	Hard Carbon

SupIR 26-105mm f/1.6, Motorized Continuous Focus 680320

NEW



WFOV(26mm)

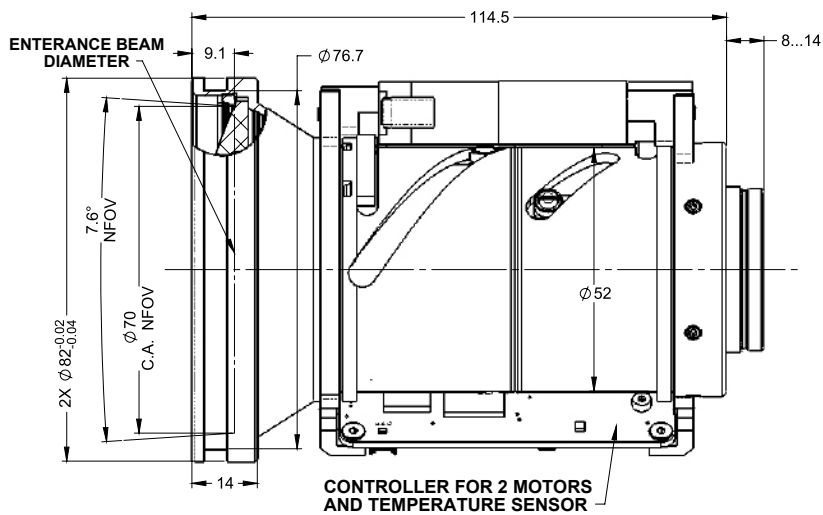
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	9.2	18.5	22.3	38.0	
17μ	6.2	12.5	15.0	25.3	
12μ	4.4	8.8	10.3	17.7	28.7

NFOV(105mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	2.2	4.4	5.2	8.7	
17μ	1.5	3.0	3.6	5.9	
12μ	1.0	2.1	2.5	4.2	6.7

Property	Value	
Optical	WFOV	NFOV
Focal Length	26mm	105mm
F/#	1.6	
Average Transmission (8-12μm)	HD ≥ 89.41% ; HC ≥ 82.81%	
Back Focal Length	37.735 mm in air	
Distortion (in diagonal)	<3%	<0.3%
Minimum Focus Range	15m	15m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 5 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 8 sec.	
Weight	<575gr	
Max. Dimensions	Ø82mm x 122.5mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	<0.8A average, 1.5A peak
Communication Protocol	RS422 or RS232
Environmental	
Operation Temperature	-32°C to +70°C
Storage Temperature	-40°C to +80°C
Sealing	IP 67 front element only
Configurations	
680320-001	High Durability
680320-002	Hard Carbon

*Adapters for different cameras are available upon request

SupIR 25-150mm f/1.4, Motorized Continuous Focus 680119



WFOV(25mm)

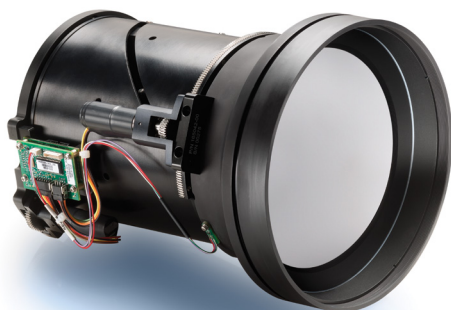
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	9.2	18.5	22.3	37.9	
17μ	6.2	12.5	15.0	25.3	41.5
12μ	4.7	9.4	11.3	18.9	30.6

NFOV(150mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	1.5	3.0	3.7	6.1	
17μ	1.0	2.1	2.5	4.1	6.6
12μ	0.7	1.5	1.8	2.9	4.7

Property	Value	
Optical	WFOV	NFOV
Focal Length	25mm	150mm
F/#	1.4	
Average Transmission (8-12μm)	≥75% for HC coating; ≥81% for HD coating	
Back Focal Length	≥28mm in air	
Distortion (in diagonal)	<13%	<2%
Minimum Focus Range	0.5m	13m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 8 sec	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤8 sec	
Weight	1.9kg	
Max. Dimensions	Ø141mm x 132.9mm	

SuplR 25-225mm f/1.5, Motorized Continuous Focus 680157



WFOV(25mm)

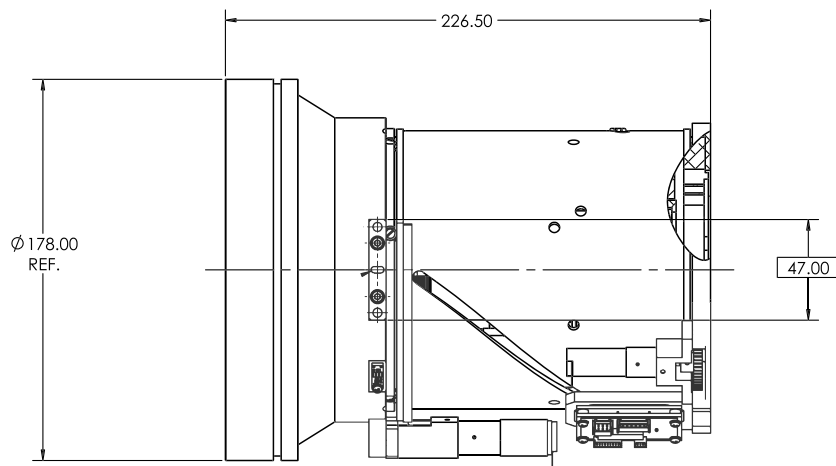
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	8.19	16.37		32.74	
17μ	5.57	11.13	13.36	22.26	35.62
12μ	4.3	8.6	10.3	17.3	27.8

NFOV(225mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	1.02	2.04		4.07	
17μ	0.69	1.38	1.66	2.77	4.43
12μ	0.5	1.0	1.2	1.9	3.1

Property	Value	
Optical	WFOV	NFOV
Focal Length	25mm	225mm
F/#	1.5	
Spectral Range	LWIR	
Average Transmission (8-12μm)	≥75% for HC coating; ≥81% for HD coating	
Back Focal Length	30.743mm in air	
Distortion (in diagonal)	<11%	<5%
Minimum Focus Range	2m	20m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 3 sec	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤8 sec (continuous zoom mode) ≤5 sec (multi-field of view mode)	
Weight	4.3kg	
Max. Dimensions	Length: 239mm (front of housing to FPA in air) Front OD: Ø178mm, Back OD: ~Ø137mm with protrusions	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	12VDC $\pm 0.5V$
Current Consumption	0.5A average, 3.5A peak
Communication Protocol	RS422
Environmental	
Operation Temperature	-46°C to + 70°C
Storage Temperature	-54°C to + 85°C
Sealing	IP 67 front element only
Configurations	
680157-001	Hard Carbon
680157-002	High Durability
680157-004	High Durability, GENIII controller
680157-005	Hard Carbon, GENIII controller

SupIR 40-300mm f/1.5, Motorized Continuous Focus 680264



WFOV(40mm)

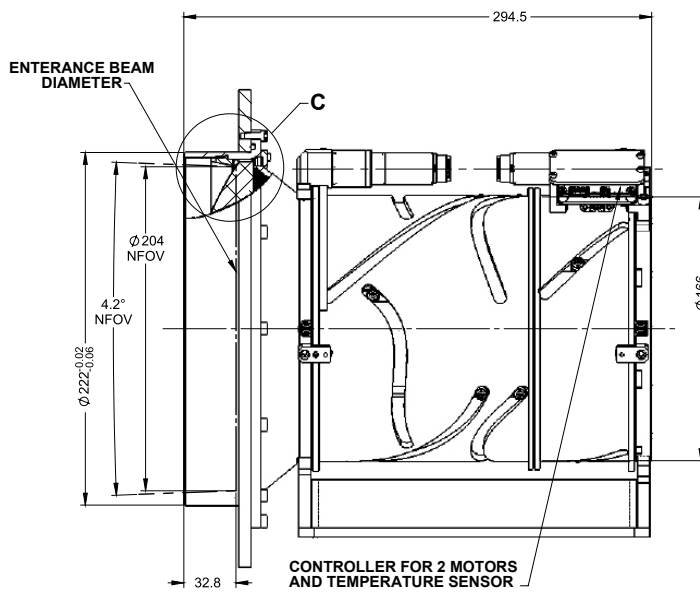
HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	6.1	12.2	14.6	24.5	
17μ	4.1	8.3	9.9	16.6	26.8
12μ	2.9	5.8	7.0	11.7	18.8

NFOV(300mm)

HFOV[deg]	160x120	320x240	384x288	640x480	1024x768
25μ	0.8	1.5	1.8	3.0	
17μ	0.5	1.0	1.2	2.1	3.3
12μ	0.4	0.7	0.9	1.5	2.3

Property	Value	
Optical	WFOV	NFOV
Focal Length	40mm	300mm
F/#	1.5	
Average transmission (3.4-5.0μ)	≥82% for HCLR coating; ≥ 84% for HD coating	
Back Focal Length	56mm in air	
Distortion (in diagonal)	<6%	<0.5%
Minimum Focus Range	2m	10m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 1 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 9 sec at -32°C; ≤ 6 sec at T ≥ 0°C	
Weight	9.9kg	
Max. Dimensions	Ø204mm x 299.5mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	< 0.8A average, 1.5A peak
Communication Protocol	RS422
Environmental	
Operation Temperature	-32°C to +75°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680264-001	High Durability
680264-002	LRHC

SupIR 50/150mm f/4.0, Motorized Continuous Focus 65103*



WFOV(50mm)

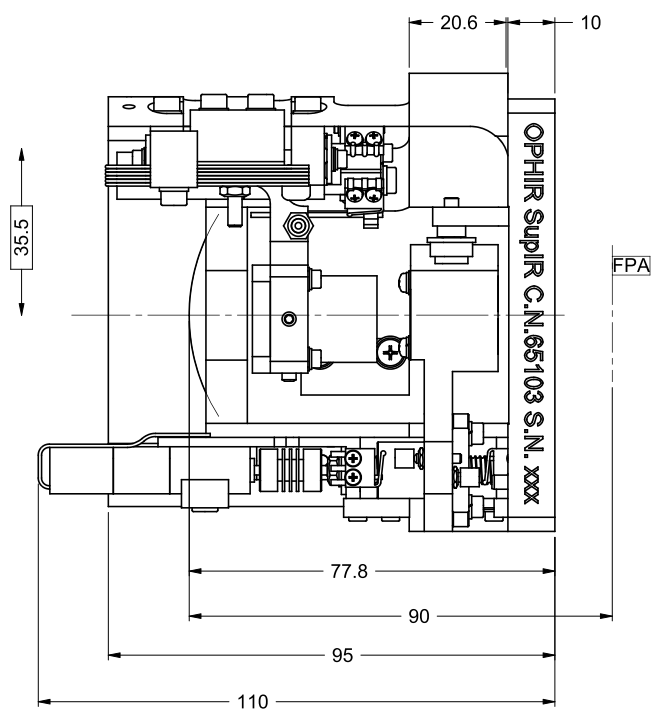
HFOV[deg]	320x240	480x384	640x512
30μ	11.0		
20μ	7.3	11.0	14.6
15μ	5.5	8.2	11.0

NFOV(150mm)

HFOV[deg]	320x240	480x384	640x512
30μ	3.6		
20μ	2.4	3.6	4.8
15μ	1.8	2.7	3.6

Property	Value	
Optical	WFOV	NFOV
Focal Length	50mm	150mm
F/#	4	
Cold Stop to FPA Distance	19.4mm	
Average Transmission (3.6-4.9μm)	97% (HE)	
Back Focal Length	26.28mm in air	
Mechanical		
Focus Mechanism	Motorized	
Focus Range	5m to infinity	20m to infinity
Focus Switch Time	6 sec.	
FOV Mechanism	Motorized	
FOV Switch Time	1 sec.	
Weight	700gr	
Max. Dimensions	Length 113mm, Width 101mm, Height 98mm	

TYPICAL ICD



Property	Value
Electrical	
Focus Motor	3.5-6VDC, Encoder:5-15VDC
FOV Motor	3.5-6VDC, Encoder:5-15VDC
Environmental	
Operating Temperature	-32°C to +55°C
Storage Temperature	-40°C to +70°C
Sealing	Consult factory
Configurations	
65103	High Efficiency

* Requires export license

SupIR 25/80/320mm f/4.0, Motorized Focus 680024



WFOV(25mm)

HFOV[deg]	320x240	480x384	640x512
30μ	21.7	31.9	
20μ	14.6	21.7	28.5
15μ	11.0	16.4	21.7

MFOV(80mm)

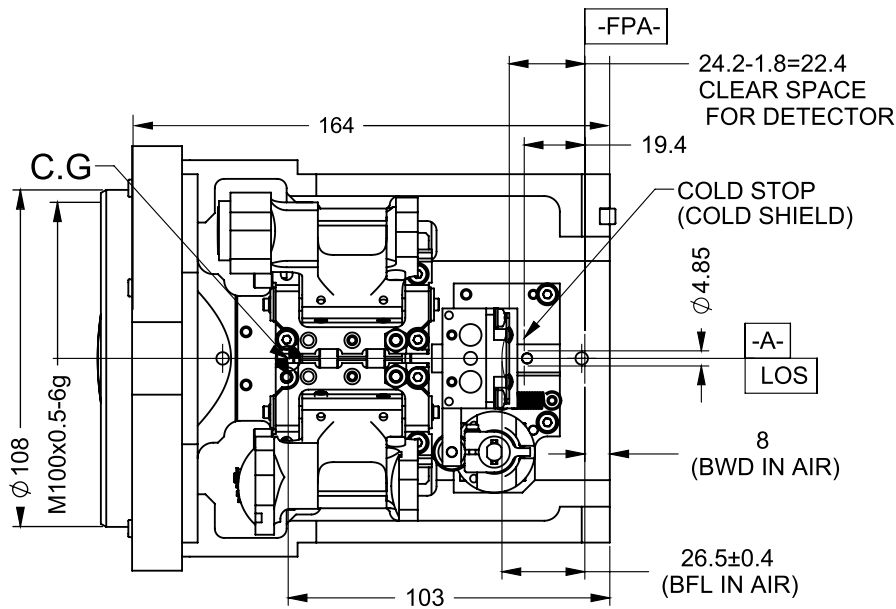
HFOV[deg]	320x240	480x384	640x512
30μ	6.9	10.1	
20μ	4.6	6.9	9.1
15μ	3.5	5.2	6.9

NFOV(320mm)

HFOV[deg]	320x240	480x384	640x512
30μ	1.7	25	
20μ	1.1	1.7	2.2
15μ	0.9	1.3	1.7

Property	Value		
Optical	WFOV	MFOV	NFOV
Focal Length	25mm	80mm	320mm
F/#	4.0		
Average Transmission (3-5μm)	96%(HD)		
Back Focal Length	37.63mm in air		
Mechanical			
Focus Mechanism	Motorized		
Focus Range	5m to infinity	10m to infinity	50m to infinity
Focus Switch Time	<5 sec.		
FOV Mechanism	Motorized		
FOV Switch Time	<1 sec.		
Weight	1.52Kg		
Max. Dimensions	Ø134mm x 165.5mm		

TYPICAL ICD



Property	Value
Electrical	
Focus Motor	6VDC I _{max} < 0.06A (Contin. Current 0.05A)
FOV Motor	6VDC I _{max} < 0.06A (Contin. Current 0.05A)
Environmental	
Operating Temperature	-20°C to +65°C
Storage Temperature	-40°C to +71°C
Sealing	IP 67 front element only
Vibration-Operation	Composite wheeled vehicle, Vertical: 2.1grms, Transverse: 1.6grms, Longitudinal: 1.96grms
Vibration-Storage	Composite wheeled vehicle, Vertical: 2.1grms, Transverse: 1.6grms, Longitudinal: 1.96grms
Mechanical Shock-Storage & Storage	40gr, 11ms
Configurations	
680024-003	Hard Carbon, Cold Shield 19.4mm, BWD 8.01mm, BFL
680024-004	High Durability, Cold Shield 19.4mm, BWD 8.01mm, BFL 26.53mm
680024-005	Hard Carbon, Cold Shield 25.4mm (1"), BWD 6.56mm, BFL 37.63mm
680024-006	Hard Carbon, Cold Shield 25.4mm (1"), BWD 6.56mm, BFL 37.63mm

SupIR 35/110/450mm f/4.0, Motorized Focus 680374

NEW

WFOV(EFL 35mm)

HFOV[deg]	320x240	480x384	640x512
30μ	15.3	22.3	28.5
20μ	10.3	15.3	20.0
15μ	7.8	11.6	15.3

MFOV(EFL 110mm)

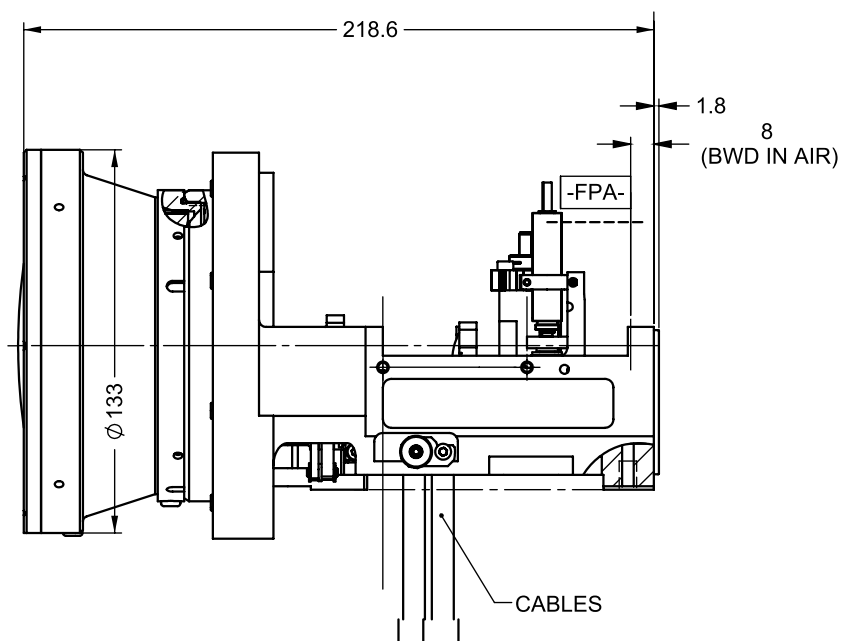
HFOV[deg]	320x240	480x384	640x512
30μ	4.9	7.2	9.4
20μ	3.3	4.9	6.4
15μ	0.6	0.9	1.2

NFOV(EFL 450mm)

HFOV[deg]	320x240	480x384	640x512
30μ	1.2	1.8	2.3
20μ	0.8	1.2	1.6
15μ	0.6	0.9	1.2

Property	Value		
Optical	WFOV	MFOV	NFOV
Focal Length	35mm	110mm	450mm
F/#	4.0		
Average Transmission (HD) (3.6-4.9μm)	83%	85%	88%
Average Transmission (LRHC) (3.6-4.9μm)	81%	83%	86%
Cold stop to FPA Distance	19.4mm		
Cold stop CA	Ø4.85mm		
Back Focal Length	26.53mm in air		
Minimum Focusing Range	50mm	10mm	5mm
Mechanical			
Focus Mechanism	Motorized		
Focus Time (Full travel)	≤ 5.5 sec.		
FOV Switch Mechanism	Motorized		
FOV Switch Time	≤ 1 sec. at T ≥ 0°C; ≤ 2 sec. at -40°C		
Through-zoom Boresight WFOV	Within Diameter of 0.3mm		
Through-zoom Boresight NFOV&MFOV	Within Diameter of 0.12mm		
Weight	2.4Kg		
Max. Dimensions	Ø1334mm x 218.6mm		

TYPICAL ICD



Property	Value
Electrical	
Focus Motor	7.5VDC < 0.06A (Contin. Current 0.05A) -32°C++65°C, with 6V+12V. -40°C++65°C, with 7.5V+12V.
Drive Voltage	7.5V-12V
Current Consumption	0.05A Average, 0.06 peak
Communication Interface	RS422
FOV Motor	7.5VDC < 0.06A (Contin. Current 0.05A) -32°C++65°C, with 6V+12V. -40°C++65°C, with 7.5V+12V.
Environmental	
Operating Temperature	-40°C to +65°C
Storage Temperature	-54°C to +71°C
Sealing	IP 67 front element only
Vibration-Operation	Composite wheeled vehicle, Vertical:2.1grms, Transverse: 1.6grms, Longitudinal: 1.96grms
Vibration-Storage	Composite wheeled vehicle, Vertical:2.1grms, Transverse: 1.6grms, Longitudinal: 1.96grms
Mechanical Shock-Storage & Storage	40gr, 11ms
Configurations	
680374-001	High Durability
680374-002	Hard Carbon

SuplR 19-200mm f/4.0, Motorized Continuous Focus 680209*



WFOV(19mm)

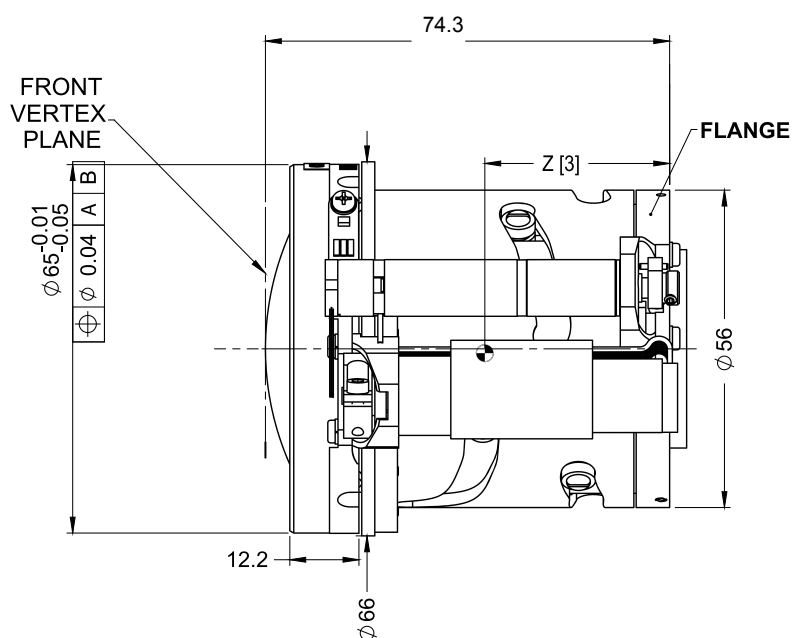
HFOV[deg]	320x240	480x384	640x512
30μ	29.7		
20μ	19.6	29.7	
15μ	14.6	22.1	29.7

NFOV(200mm)

HFOV[deg]	320x240	480x384	640x512
30μ	2.8		
20μ	1.9	2.8	
15μ	1.4	2.1	2.8

Property	Value	
Optical	WFOV	NFOV
Focal Length	19mm	200mm
F/#	4.0	
Cold Stop to FPA Distance	19.4mm	
Cold Stop CA	Ø4.85mm	
Average Transmission (3.4-5.0μm)	≥ 84% for HCLR coating; ≥ 87% for HD coating	
Back Focal Length	25.1mm in air	
Distortion	<7%	<5%
Minimum Focus Range	5m	50m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 1 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 7 sec at -32°C; ≤ 5 sec at T ≥ 0°C (at max. speed)	
Weight	400gr	
Max. Dimensions	Ø65mm x 74.3mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	< 0.5A average, 1.0A peak
Communication Protocol	RS422
Environmental	
Operating Temperature	-32°C to +75°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680209-001	High Durability FPA 640x512 pixels 15μ pitch
680209-002	Hard Carbon Low Reflection FPA 640x512 pixels 15m pitch

* Requires export license

SupIR 19-275mm f/5.5, Motorized Continuous Focus 65196*



WFOV(19mm)

HFOV[deg]	320x240	480x384	640x512
30μ	29.8		
20μ	19.6	29.8	
15μ	14.6	22.1	28.3

NFOV(275mm)

HFOV[deg]	320x240	480x384	640x512
30μ	2.0		
20μ	1.3	2.0	
15μ	1.0	1.5	2.0

Property	Value	
Optical	WFOV	NFOV
Focal Length	19mm	275mm
F/#	5.5	
Cold Stop to FPA Distance	19.1 ± 19.7mm	
Cold Stop CA	Ø3.56mm	
Average Transmission (3.4-5.0μm)	≥ 81% for HC coating; ≥ 87% for HD coating	
Back Focal Length (Assuming 1.5mm Ge Window & Filter)	24.7mm in air	
Distortion	<5%	
Minimum Focus Range	5m	50m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized Adjustable	
Focus Time (minimum range to ∞)	≤ 8 sec.	
Zoom Mechanism	Motorized Adjustable	
Zoom Time (NFOV to WFOV)	≤ 5 sec	
Weight	445gr	
Max. Dimensions	Length 74.3mm; Width 83.5mm Height 69.0mm	

LightIR 20-275mm f/5.5, Motorized Continuous Focus 680314

NEW



WFOV(EFL 20mm)

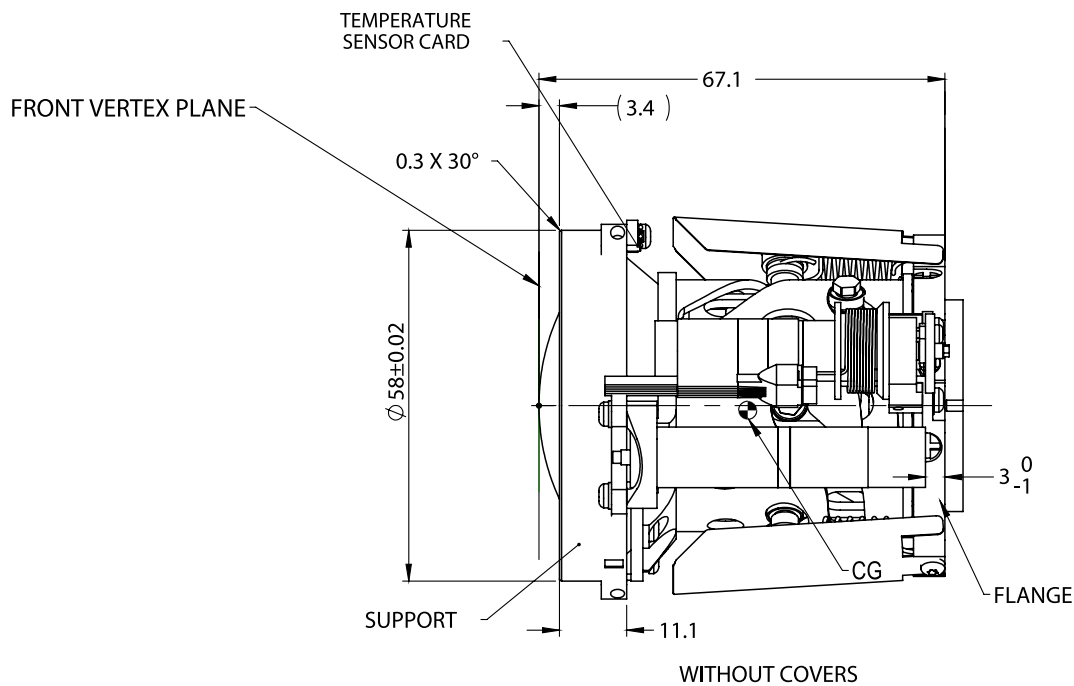
HFOV[deg]	480x384	640x512
20 μ	28.0	
15 μ	20.9	28.0

NFOV(EFL 275mm)

HFOV[deg]	320x240	480x384	640x512
20 μ	1.3	1.9	
15 μ	1.0	1.5	1.9

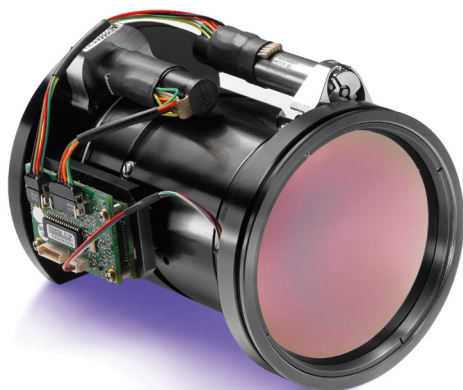
Property	Value	
Optical	WFOV	NFOV
Focal Length	20mm	275mm
F/#	5.5	
Cold Stop to FPA Distance	19.4mm	
Cold Stop CA	Ø3.52mm	
Average Transmission (3.6-4.9 μ m)	80%	
Back Focal Length	23.52mm in air	
Distortion	<5%	
Minimum Focus Range	5m	50m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 8 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 5 sec	
Through-zoom boresight	0.5mm on detector plane	
Weight	264gr	
Max. Dimensions	Ø58mm x 67.1mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	12VDC
Current Consumption	0.2A average, 1.0A peak
Communication Protocol	RS485, RS422
Environmental	
Operating Temperature	-35°C to + 65°C
Storage Temperature	-40°C to + 80 °C
Sealing	IP 67 front element only
Configurations	
680314-001	High Durability
680314-002	Hard Carbon

SupIR 15-300mm f/4.0, Motorized Continuous Focus 680084 / 680204



WFOV(15mm)

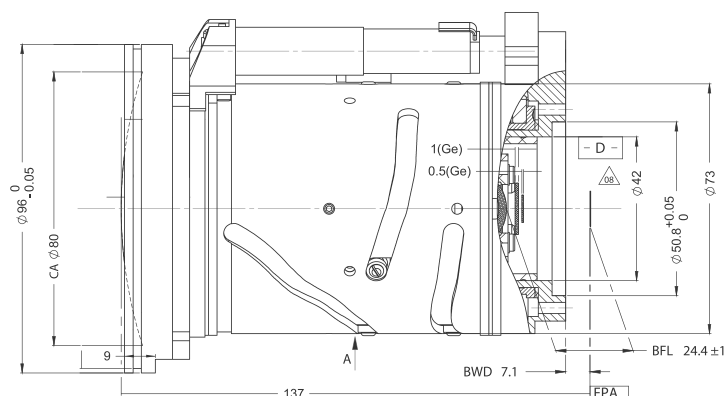
HFOV[deg]	320x240	480x384	640x512
30μ	35.1		
20μ	24.0	35.1	48.0
15μ	18.2	26.8	35.1

NFOV(300mm)

HFOV[deg]	320x240	480x384	640x512
30μ	1.8		
20μ	1.2	1.8	2.4
15μ	0.9	1.4	1.8

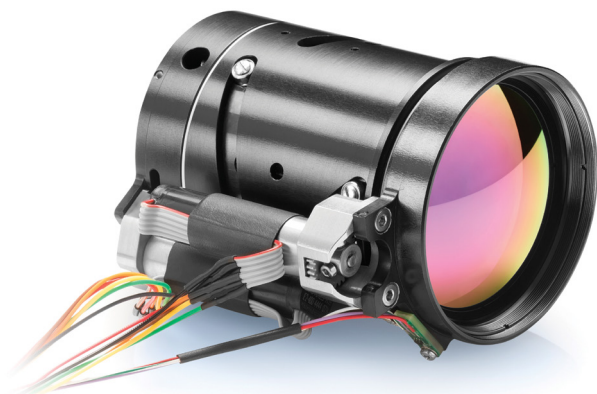
Property	Value	
Optical	WFOV	NFOV
Focal Length	15mm	300mm
F/#	4.0	
Cold Stop to FPA Distance	19.4mm / 20.5mm	
Cold Stop CA	Ø4.85mm	
Average Transmission (3.4-5.0µm)	≥87% for HD coating ≥81% for HC coating	
Back Focal Length	24.4mm in air	
Distortion	<8%	<5%
Minimum Focus Range	5m	50m
Nuc (by defocus)	680084	19.4mm
		Ø4.85mm
		22.92mm in air
	680204	205mm
		Ø5.1mm
		25.8mm in air
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 1 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 8 sec at -32°C; ≤ 5 sec at T ≥ 20°C (at max. speed)	
Weight	965gr	
Max. Dimensions	Ø96mm x 130mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	12VDC
Current Consumption	0.5A average, 1.0A peak at T = -32°C;
	0.2A average, 1.0A peak at T ≥ 20°C
Communication Protocol	RS422
Environmental	
Operating Temperature	-32°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680084-001	High Durability, 640x512 pixels, 20μ pitch
680084-002	Hard Carbon, 640x512 pixels, 20μ pitch
680084-003	High Durability, 640x512 pixels, 15μ pitch
680084-004	Hard Carbon, 640x512 pixels, 15μ pitch
680204-001	High Durability, 640x512 pixels, 15μ pitch, cold stop to FPA - 20.5mm
680204-002	Hard Carbon, 640x512 pixels, 15μ pitch, cold stop to FPA - 20.5mm

SupIR 15-300mm f/5.5, Motorized Continuous Focus 680313

NEW

WFOV(15mm)

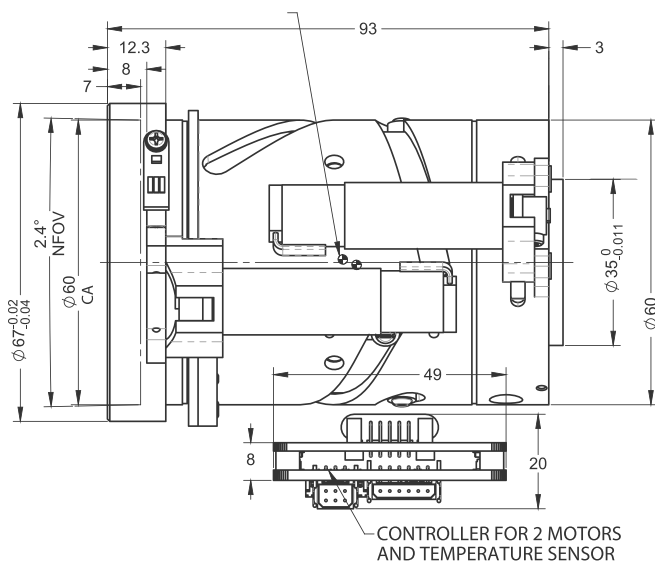
HFOV[deg]	320x256	480x384	640x512
30μ	36.3	53.5	
20μ	24.4	36.3	
15μ	18.3	27.4	36.3

NFOV(300mm)

HFOV[deg]	320x256	480x384	640x512
30μ	1.8	2.7	
20μ	1.2	1.8	2.4
15μ	0.9	1.4	1.8

Property	Value	
Optical	WFOV	NFOV
Focal Length	15mm	300mm
F/#	5.5	
Cold Stop to FPA Distance	19.7mm-19.1mm	
Cold Stop CA	Ø3.58mm	
Average Transmission (3.4-5.0μm)	≥ 84% for LR HC coating; ≥ 87% for HD coating	
Back Focal Length	25.33mm in air	
Distortion	<4%	<4%
Minimum Focus Range	5m	50m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 1 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 5 sec	
Weight	500gr	
Max. Dimensions	Ø67mm x 93mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	< 0.5A average, 1.0A peak
Communication Protocol	RS422
Environmental	
Operating Temperature	-32°C to +80°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680313-001	High Durability FPA 640x480 pixels 20μ pitch
680313-002	Hard Carbon FPA 640x480 pixels 20μ pitch(LRHC)
680313-003	High Durability FPA 640x512 pixels 15μ pitch
680313-004	Hard Carbon FPA 640x512 pixels 15m pitch (LRHC)

SupIR 21-420mm f/4.0, Motorized Continuous Focus 680160



WFOV(21mm)

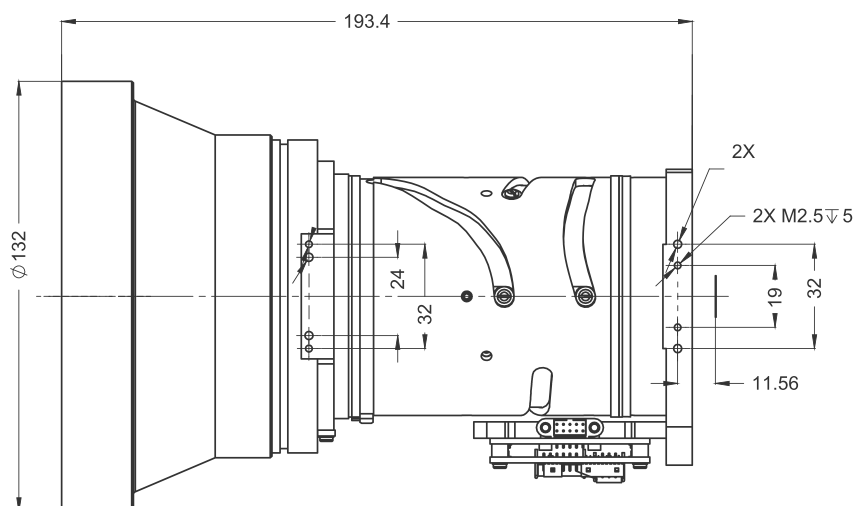
HFOV[deg]	320x240	480x384	640x512
30μ	25.1		
20μ	17.1	25.1	32.0
15μ	13.0	19.1	25.1

NFOV(420mm)

HFOV[deg]	320x240	480x384	640x512
30μ	1.3		
20μ	1.2	1.3	1.7
15μ	0.64	1.0	1.3

Property	Value	
Optical	WFOV	NFOV
Focal Length	21mm	420mm
F/#	4.0	
Cold Stop to FPA Distance	19.4mm	
Cold Stop CA	Ø4.85mm	
Spectral Range	3.4-5.0 μm	
Average Transmission (3.4-5.0μm)	≥ 84% for HD coating	
Back Focal Length (Assuming 1.5mm Ge Window & Filter)	≥ 24.4mm in air	
Distortion	<8%	<5%
Minimum Focus Range	10m	100m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 1 sec. at maximum speed	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 8 sec at -32°C; ≤ 5 sec at T≥20°C (at max speed)	
Through-Zoom Boresight	within a radius of 0.25mm at the focal plane along the full zoom range	
Through-Zoom Parfocality	Focused image	
Weight	1600gr	
Max. Dimensions	Length: 200.5mm (front to FPA); Diameter: 132mm	

TYPICAL ICD



Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	12VDC
Current Consumption	0.5A average, 1.0A peak at T=-32°C
Communication Protocol	RS422
Environmental	
Operating Temperature	-32°C to + 80°C
Storage Temperature	-54°C to + 85 °C
Sealing	IP 67 front element only
Configurations	
680160-001	High Durability, FPA 640X512X20 μ (for Pelican detector)
680160-002	High Durability, FPA 640X512X15 μ (for Pelican detector)
680160-004	LRHC 640x512, 15u (for LEO detectors)
680160-005	HD 640X512, 15u (for Pelican Detector)
680160-006	LRHC 640x512, 15u (for Scorpio detector)

SupIR 30-600mm f/4.0, Motorized Continuous Zoom 680384 & 680385

NEW

WFOV(690mm)

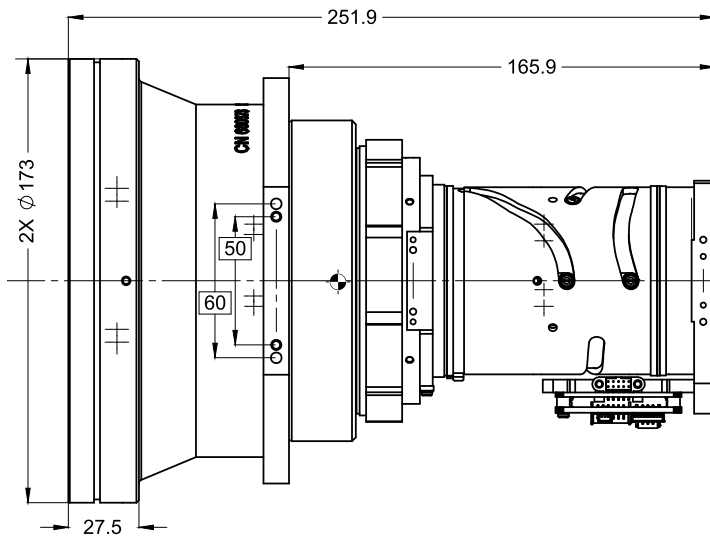
HFOV[deg]	320x240	480x384	640x512
30μ	17.2	23.6	
20μ	11.9	17.2	21.7
15μ	9.0	13.3	17.2

NFOV(35mm)

HFOV[deg]	320x240	480x384	640x512
30μ	0.9	1.3	
20μ	0.6	0.9	1.2
15μ	0.5	0.7	0.9

Property		Value		
Optical		WFOV	NFOV	Remarks
Focal Length		30mm	600mm	Continuous zoom
F/#		4.0		
Average transmission (3.4-5.0μ)		≥ 75% for HCLR coating ≥ 80% for HD coating (3.6-4.9μ)		
680384-001/2	Based on Zoom Lens:	15-300mm f/4 680084-003		
	Cold stop to FPA Distance	19.4mm		
	Cold Stop CA	Ø4.85mm		
	BFL	25.1mm		
680385-001/2	Based on Zoom Lens:	15-300mm f/4 680084-001		
	Cold stop to FPA Distance	20.47mm		
	Cold Stop CA	Ø5.1		
	BFL	27.12mm		
Distortion		<7%	<5%	
On-Axis MTF at 25cy/mm		≥ 30% at all zoom positions		TBR
Minimum Focus Range		5m	200m	
Nuc		By defocus (blur to 3mm diameter)		
Mechanical				
Focus Mechanism		Motorized. Adjustable		
Focus Time (minimum range to ∞)		≤ 1 sec at maximum speed		
Zoom Mechanism		Motorized. Adjustable		
Zoom Time (NFOV to WFOV)		≤ 7 sec at -32°C; ≤ 5 sec at T ≥ 0°C (at max. speed)		
Through-zoom boresight		Within a radius of 0.22mm (15Pix) at the focal plane along the full zoom range		

TYPICAL ICD



Property	Value
Mechanical	
NFOV boresight retention	Within a radius of 0.05mm at the focal plane
Weight	3.1kg
Max. Dimensions	Length: 251.9 mm, Ø173mm
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	< 0.5A average, 1.0A peak
Communication Interface	RS422
Environmental	
Operation Temperature	-32°C to +75°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front lens only
Vibration – operation	2.3gRMS

SupIR 35-690mm f/4.0, Motorized Continuous Focus 680294 & 680295



WFOV(690mm)

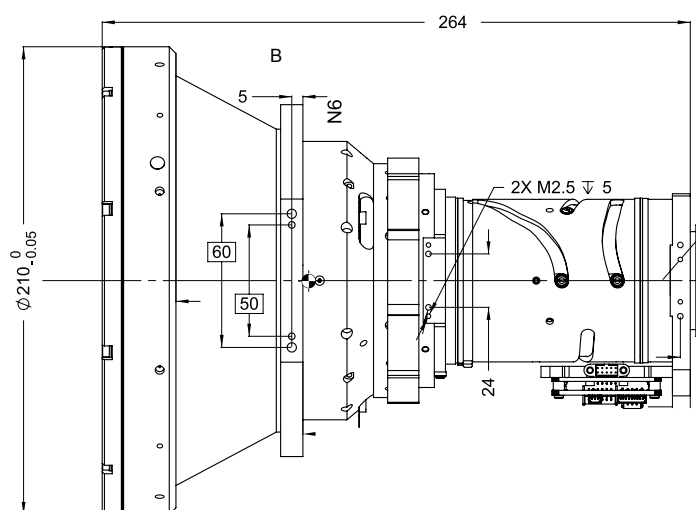
HFOV[deg]	320x240	480x384	640x512
30μ	15.2		
20μ	10.4	15.2	19.4
15μ	7.9	11.6	15.2

NFOV(35mm)

HFOV[deg]	320x240	480x384	640x512
30μ	0.8		
20μ	0.5	0.8	1.0
15μ	0.4	0.6	0.8

Property		Value	
Optical		WFOV	NFOV
Focal Length		35mm	690mm
F/#		4.0	
Average transmission (3.4-5.0μ)		≥ 80% for HCLR/HC coating	
680294-001/2	Based on Zoom Lens:	15-300mm f/4 680084-003 (for Pelican detector)	
	Cold stop to FPA Distance	19.4mm	
	Cold Stop CA	Ø4.85mm	
	BFL	25.1mm (assuming 1.5mm Ge window & filter)	
680294-001/2	Based on Zoom Lens:	15-300mm f/4 680204-001 (for Scorpio detector)	
	Cold stop to FPA Distance	20.47mm	
	Cold Stop CA	Ø5.1	
	BFL	27.12mm (assuming 1mm Si window & 0.3mm Ge cold filter)	
Distortion (in diagonal)		<7%	<5%
Minimum Focus Range		5m	50m
Nuc (by defocus)		Yes	
Mechanical			
Focus Mechanism		Motorized	
Focus Time (minimum range to ∞)		≤ 1 sec.	
Zoom Mechanism		Motorized	
Zoom Time (NFOV to WFOV)		≤ 7 sec at -32°C; ≤ 5 sec at T ≥ 0°C	
Through-zoom boresight		Within a radius of 0.35 mm at the focal plane along the full zoom range	

TYPICAL ICD



Property	Value
Mechanical	
NFOV boresight retention	Within a radius of 0.35mm at the focal plane
Through-zoom parfocality	Focused image
Weight	~4.3kg
Max. Dimensions	Ø186mm x 264mm
Electrical	
Lens Control	Designated lens controller
Drive Voltage	6-12VDC
Current Consumption	< 0.5A average, 1.0A peak
Communication Protocol	RS422
Environmental	
Operation Temperature	-32°C to +75°C
Storage Temperature	-54°C to +85°C
Sealing	IP 67 front element only
Configurations	
680294-001	Hard Carbon FPA 640x512 pixels 15m pitch for Pelican detector
680294-002	Hard Carbon Low Reflection FPA 640x512 pixels 15m pitch for Pelican detector (CSH= 19.4mm)
680295-001	Hard Carbon FPA 640x512 pixels 15m pitch for Scorpio detector
680295-002	Hard Carbon Low Reflection FPA 640x512 pixels 15m pitch for Scorpio detector (CSH= 20.47mm)

SupIR 48.5-700mm f/5.5, Motorized Continuous Focus 680102-004*



WFOV(48.5mm)

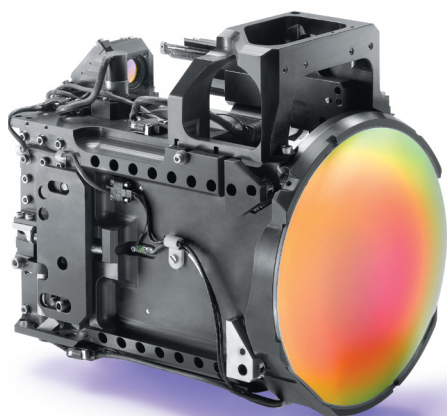
HFOV[deg]	320x240	480x384	640x512
30μ	11.9		
20μ	7.8	11.9	
15μ	5.8	8.8	11.9

NFOV(700mm)

HFOV[deg]	320x240	480x384	640x512
30μ	0.8		
20μ	0.5	0.8	
15μ	0.4	0.6	0.8

Property	Value	
Optical	WFOV	NFOV
Focal Length	48.5mm	700mm
F/#	5.5	
Average Transmission (3.4-5.0μm)	≥ 80% (HD)	
Cold Stop to FPA Distance	19.7mm	
Cold Stop CA	Ø3.56mm	
Back Focal Length (Assuming 1.5mm Ge Window & Filter)	≥24.7mm in air	
Distortion (in diagonal)	<10%	<5%
Minimum Focus Range	31m	312m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 8 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 5 sec	
Weight	2.45kg	
Max. Dimensions	Ø160mm x 208.35mm	

SupIR 28-850mm f/5.5, Motorized Continuous Focus 680072



HD
FORMAT

WFOV(28mm)

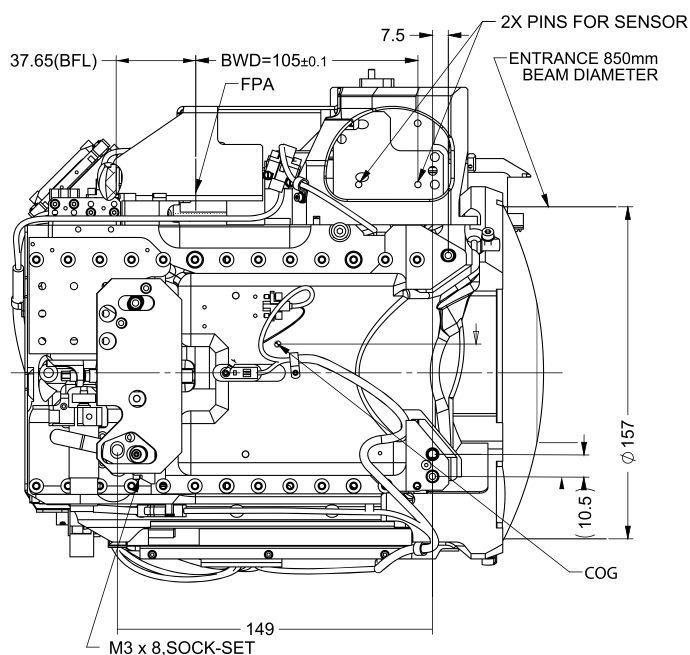
HFOV[deg]	320x240	480x384	640x512	1280x1024
30μ	19.8	29.7	39.8	
20μ	13.2	19.8	26.4	
15μ	9.9	14.8	19.8	39.8

NFOV(412mm)

HFOV[deg]	320x240	480x384	640x512	1280x1024
30μ	0.6	1.0	1.3	
20μ	0.4	0.6	0.9	
15μ	0.3	0.5	0.6	1.3

Property	Value	
Optical	WFOV	NFOV
Focal Length	28mm	850mm
F/#	5.5	
Average Transmission (3.5-5.0μm)	≥ 76% (HC)	
Cold Stop to FPA Distance	28mm	
Cold Stop Ca	Ø5.09mm	
Back Focal Length	≥37.6mm in air	
Distortion (in diagonal)	<5%	
Minimum Focus Range	3m	50m
Nuc (by defocus)	Yes	
Mechanical		
Focus Mechanism	Motorized	
Focus Time (minimum range to ∞)	≤ 8 sec.	
Zoom Mechanism	Motorized	
Zoom Time (NFOV to WFOV)	≤ 8 sec	
Weight	4.6kg	
Max. Dimensions	Length 256mm; Width 176mm; Height 257.5mm	

TYPICAL ICD



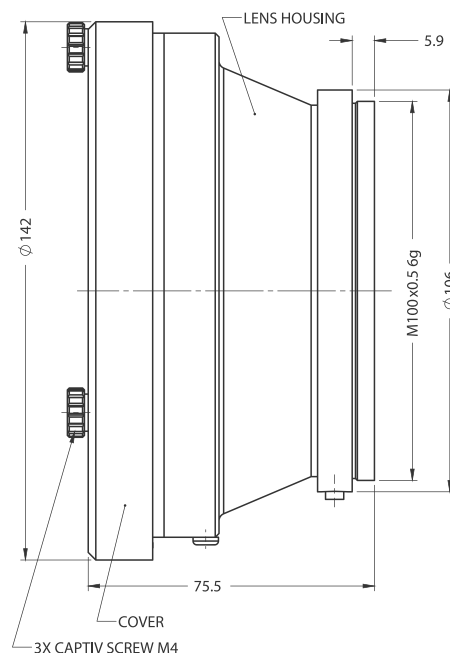
Property	Value
Electrical	
Lens Control	Designated lens controller
Drive Voltage	28VDC
Current Consumption	1.25A average, 2.5A peak
Communication Protocol	RS422
Environmental	
Operating Temperature	-20°C to + 65°C
Storage Temperature	-54°C to + 71 °C
Sealing	Unsealed
Configurations	
680072-002	640x480 CSH 28 with TEC
680072-003	1280x1024 CSH 28 with TEC
680072-006	640x480 CSH 28 W/O TEC
680072-007	1280x1024 CSH 28 W/O TEC

* Requires export license

SupIR 1.4x Extender 65065



TYPICAL ICD

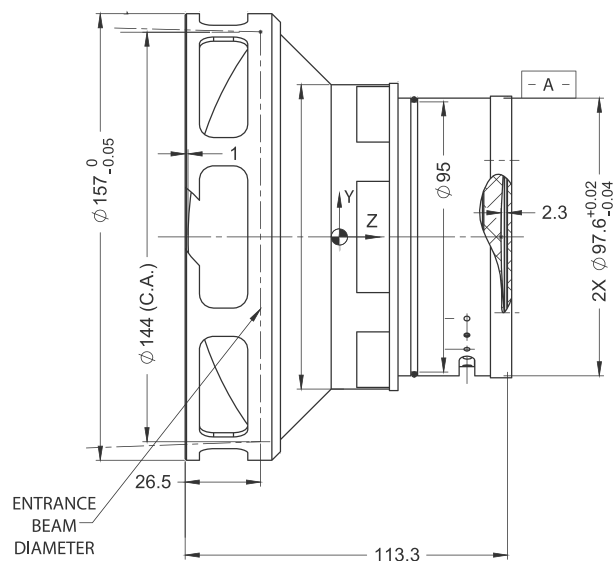


Property	Value
Optical	
Extension Value	X1.4
Entrance Beam Diameter	Ø120mm
Exit Beam Diameter	Ø86mm
Average Transmission (3-5µm)	97% (HD)
Mechanical	
Weight	870gr
Max. Dimensions	Ø142mm x 78.5mm
Environmental	
Operating Temperature	-20°C to +65°C
Storage Temperature	-40°C to +71°C
Sealing	IP 67 front element only
Configurations	
65065-05	High Durability
65065-06	Hard Carbon

SupIR 2.5x Extender

680011*

TYPICAL ICD



Property	Value
Optical	
Extension Value	X2.5
Entrance Beam Diameter	Ø144mm
Exit Beam Diameter	Ø54mm
Average Transmission (3-5µm)	92% (HC)
Mechanical	
Weight	1.3Kg
Max. Dimensions	Ø160mm x 113mm
Environmental	
Operating Temperature	-32°C to +65°C
Storage Temperature	-40°C to +71°C
Sealing	IP 67 front element only
Configurations	
680011-001	Hard Carbon
680011-004	High Durability

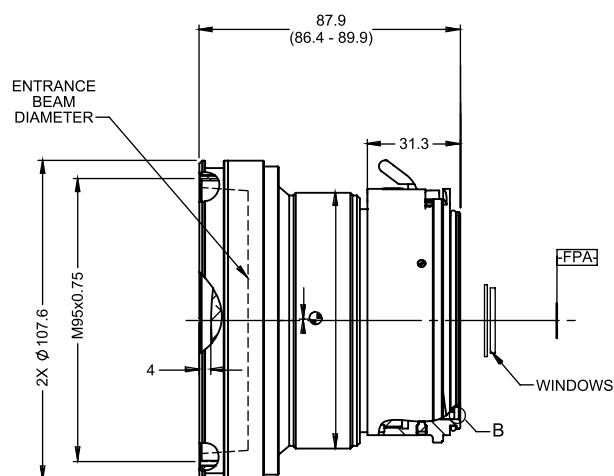
* Requires export license

SupIR 75mm F/1.2

Manual Focus

680189

NEW



HFOV[deg]	320x240	480x384	640x512
30μ	7.3		
20μ	4.9	7.3	
15μ	3.7	5.5	7.3

Property	Value
Optical	
Focal Length	75mm
F/#	1.2
Average Transmission (8-12μm)	88%
Back Focal Length	44.05mm in air
Mechanical	
Focus Mechanism	Manual
Depth of Field	400m to infinity
Focus Range	5m to infinity
Weight	780gr
Max. Dimensions	Ø 107.6mm x 87.9mm
Environmental	
Operating Temperature	-20°C to +55°C
Storage Temperature	-40°C to +80°C
Sealing	IP 67 front element only
Configurations	
680189-001	High Durability
680189-002	Hard Carbon

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